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Bricks or clicks? Factors influencing shopping behavior of Generation Z

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Abstract

Research background: Generation Z, a consumer base with significant global impact, strongly relies on smart devices, shaping their unique consumption patterns. As this demographic becomes increasingly influential, understanding their shopping behavior is crucial for effective retail marketing strategies.

Purpose of the article: This article aims to evaluate the shopping behavior and habits of Generation Z, particularly focusing on the determinants that influence their choices, with a specific emphasis on the role of smart technology. The objective is to uncover insights that explain the relationship between smart device usage and shopping behavior, offering perspectives for retailers aiming to tailor their strategies to the preferences of this demographic.

Methods: A survey conducted during the 2019/2020 season involved 1,756 respondents from the Czech Generation Z. To estimate the relationships between smart device usage and shopping behavior, the linear probability and the logit models were employed. Additionally, descriptive statistics provided a comprehensive overview of respondents' preferences and habits.

Findings & value added: The results indicate that while the average time spent on smartphones does not inherently correlate with an increased preference for online shopping, it does enhance the likelihood of engaging in online transactions. Contrary to expectations, brick-and-mortar stores remain competitive and are slightly more preferred than online shops among the Czech young generation. This preference is attributed to the tangible experience of touching products and immersing in the store's ambiance. Furthermore, a relationship emerges between concerns about data security and a reduced frequency of online shopping, emphasizing the need to address such apprehensions in marketing strategies. Overall, these findings provide insights into the nuanced shopping behaviors of Generation Z, with implications that extend beyond regional boundaries, guiding retailers in adapting and optimizing their approaches to meet the needs of this demographic.

Introduction

Different generations of consumers exhibit distinct shopping patterns, which, in today's globalized world, apply to all countries and their populations. Although the boundaries between generations are often blurred, distinguishing them in research is justified (Kunc *et al.*, 2020; Dabija *et al.* 2020, 2022; Eger *et al.*, 2021; Ameen *et al.*, 2023; Nwobodo & Weissmann, 2024 and many others). Based on generational theory, which groups individuals by their birth year, significant social events in their lives, values, and preferences (Williams & Page, 2011), reflected in their (shopping) behavior (Dabija *et al.*, 2022), the paper focuses on Generation Z. As Generation Z is currently the fastest-growing marketing segment, the paper concentrates on the specific behaviors of consumers. This generation also has a pronounced tendency to use the Internet and modern communication technologies, which are integral parts of their daily lives.

In recent years, technology and connected devices have brought new online shopping opportunities for consumers as well as challenges for retailers (Willems *et al.*, 2017; Narang & Shankar, 2019; Reinartz *et al.*, 2019; Stanciu & Rindaşu, 2021; Quinones *et al.*, 2023). In particular, the shopping habits of young people depend on modern technologies. Typically, these consumers have maximum technological competencies and equipment as well as being highly literate in online communication and information search (McKnight, 2018). The young consumer market will have a direct impact on retail in the coming years, reshaping the way that consumers shop. Generation Z is the dominant market segment that will be targeted by retailers' marketing strategies tied to an increasingly powerful and "mainstream" online environment. Understanding the impact of this tech-savvy demographic on the future of the retail industry is crucial.

To anticipate the future trends in the retail industry more broadly, the paper fills research gaps by focusing specifically on individuals born in the mid-1990s and later, commonly known as "Generation Z" (Williams & Page, 2011; Armstrong *et al.*, 2017, Dabija *et al.*, 2022). While previous studies investigated age-related patterns in online grocery purchasing across generations or among older adults (e.g., Bartók *et al.*, 2021; Kvalsvik, 2022; Braun & Osman, 2024), this paper extends the research by examining a broader range of factors influencing shopping behavior within the Generation Z. In addition to the basic factors influencing the methods or frequency of shopping, it also explores multifaceted factors such as the influence of smartphones on Generation Z's shopping decisions, their active utilization of discount codes, and their perceptions and navigation of cybersecurity risks while shopping online. It offers nuanced insights crucial for adapting marketing strategies to the rapidly changing retail landscape, specifically within the context of a single generation.

The paper adopts a detailed approach, examining a significant sample of 1,756 respondents from the Czech Republic born approximately in the mid-1990s and later, who are often called Generation Z. It aims to identify the determinants that influence their attitudes towards the way of shopping as well as their consumer habits, with an emphasis on the use of smart technology. These findings extend the understanding of the consumer behavior of members of Generation Z.

The paper is organized into the following sections. The first part presents a literature review, highlighting the current state of studies on consumer shopping behavior with a focus on Generation Z within the frame-

work of generational theory. Next, the research methodology and data are described in detail. In the results section, the key findings from the analyses are presented. The subsequent discussion section compares these findings with those of previously published studies. Finally, the paper concludes with a summary of the main research findings.

Literature review

Generation Z is the fastest-growing market segment, making up more than a third of the world's population (about one third in Western countries), and the largest growing online consumer group (Weinswig, 2016; Sherwen, 2023). In response, companies are increasingly tailoring their offerings to cater to this demographic. For instance, companies list internships specifically targeted at Generation Z, banks create specialized programs for young people, and marketers conduct extensive research into their interests and preferences (ICSC, 2023; Sherwen, 2023).

This focus on generational behavior is grounded in Generational Theory, first introduced in 1923 by Hungarian sociologist Karl Mannheim. Mannheim's sociology of knowledge posits that generations, like social class or cultural events, are shaped by major historical events, impacting individuals' consciousness. He noted that people are more influenced by their era than their parents (McCrinkle & Wolfinger, 2009). The modern interpretation, known as the Strauss-Howe Generational Theory, gained popularity in the 1990s (Van Twist & Newcombe, 2021). This theory outlines four life stages: childhood, young adulthood, middle age, and old age. A social generation comprises individuals sharing the same historical experiences and social influences during these life stages, leading to common beliefs, societal perceptions, behavior patterns, and collective generational identity (Van Twist & Newcombe, 2021).

Consumers born after 1994, generally referred to as Generation Z, have characteristics that set them apart from other generations, especially in terms of their consumption habits. It is a generation of consumers who are technologically savvy, creative, innovative, and highly educated (Priporas *et al.*, 2017; Ng *et al.*, 2019; Ameen *et al.*, 2023). This generation was born into a digital age and lives online, integrating and interacting with brands virtually. Despite being digital natives, members of Generation Z often shop at brick-and-mortar stores. This duality makes it crucial for retailers

to judiciously use both physical stores and online social media channels to stay relevant (Sherwen, 2023).

In an original study, Wood (2013) asserts that four trends characterize Generation Z as consumers: 1) An interest in new technologies; 2) An insistence on ease of use; 3) A desire to feel safe; and 4) A desire to temporarily escape the realities they face. In the shopping behavior among individual generation cohorts, we can see certain analogies created as a result of sharing similar priorities and life values, developed during the formative years, which may last until the end of life (Hung *et al.*, 2007). Given the fact that priorities across generation cohorts are different, diverse shopping behavior may also be expected (Eger *et al.*, 2021; Nwobodo & Weissmann, 2024). Francis and Hoefel (2018) describe the behavior of Generation Z as highly analytical and pragmatic. Generally, there are two factors that consumers focus on — price and quality. However, there is a growing trend of shopping behavior that is more complex in terms of assessing the costs and benefits of consumer choices (Szmigin & Piacentini, 2018).

A current study by a British consultancy (Sherwen, 2023) adds that Generation Z consumers are less loyal to retailers than older generations and expect retailers to provide excellent customer service along with sustainable, ethical business operations and brand values. Generation Z consumers are much more intolerant of poor customer service, ethics, and unsustainable operations than their predecessors (Goldring & Azab, 2021; Kara & Min, 2024).

Compared to the previous generations, the shopping process of Generation Z is much more influenced by modern technologies, which are an indispensable part of their daily lives. This generation typically displays maximum technological competencies and the intensity of using smart mobile devices (Armstrong *et al.*, 2017; Ameen *et al.*, 2023; ICSC, 2023). This was demonstrated in a survey among a representative sample of the Czech population within the context of shopping behavior (Acomware, 2018). It was found that one third of shopping undertaken by respondents aged 15–25 years old was realized via mobile phones, and more than half of them (55%) preferred social networks as communication channels. On the other hand, some key areas within retail management have been facilitated by technology (Grewal *et al.*, 2021).

Social media is a very strong and effective marketing tool. Promoting any products or services through social media channels may represent a significant competitive advantage (Nadanyiova & Sujanska, 2023). Liu *et*

al. (2012) also mentioned the impact of influencers in the form of sharing a personal experience and provoking a sense of need, commonly utilizing personal reviews, videos, and the provision of discount vouchers or promo codes for specific products. Although digitally savvy consumers often shop through social media, recommendations from family and friends exert a more significant influence on purchasing decisions (ICSC, 2023). This suggests that while influencers play a vital role, personal connections and recommendations remain paramount in shaping consumer behavior. From a psychological perspective, congruence between the influencer and consumer generates a higher intention to purchase (Belanche *et al.*, 2021; Han & Balabanis, 2024).

Young consumers tend to use social networks to improve the quality of their decisions by finding information and reducing risk (Cole, 2007). One of the most significant risks and worries of the present time is consumers' concern about the protection of privacy in online shopping, which is influenced by factors related to security, especially privacy policies (Putri *et al.*, 2024). There is talk of the so-called "security assurance theory" (Ray *et al.*, 2011), which explains the influence of the user's perception of Web security and examines the perception of security control, whether it is influenced only by user tendencies (consumer intent) or conditions created by service providers. According to Alzaidi and Agag (2022), the perception of security is one of the biggest challenges in the development of new interactive media. As Wang and Herrando (2019) or Zhang *et al.* (2022) point out, concerns about privacy factors grow along with the development of new technologies, especially social elements and information processing, and various problems that result from this development.

Today's consumers have *de facto* two possibilities for how to shop, either in brick-and-mortar stores (individual or within a shopping center) or online stores. Both ways are characterized by a particular specificity and relate to several typical attributes. Table 1 provides an overview of the individual functions of both ways of shopping. Almost all functions provided by a traditional form of shopping might be, in a partially modified form, seen also in online shopping.

Lohse and Spiller (1999) claimed that online shopping is not able to fully replace the traditional way of shopping and offer all aspects of traditional shopping. They referred to the explanation by Li *et al.* (1999) stating that, for example, consumers shopping online are limited by a lack of contact with a shop assistant, the possibility to touch, or try (on) a particular prod-

uct, or the experience of feeling the atmosphere of the store itself. What is worth mentioning is the timelessness of defining the basic features of online shopping by Lohse and Spiller (1999). The accuracy used by the authors while describing the character of both forms of shopping more than 20 years ago in the Western world, and which was to some extent transferable to the present times, is remarkable. In the Central European countries, and thus also the Czech Republic, online shopping was at the turn of the century at its very beginning.

Sarkar and Das (2017) were dealing with a difference between online and offline shopping. They defined ten areas in total in which both forms of shopping differ from each other; placing greater emphasis on the description of the advantages of online shopping, compared to Lohse and Spiller (1999). This fact might be attributed to a nearly 20-year-long gap between both studies. In the description of individual features, a different approach by the authors influenced by a fundamental progress in the development of technologies and general improvement of online shopping services is evident. Specific features are briefly demonstrated in Table 2.

Existing research on consumer generations, particularly focusing on Generation Z, predominantly involves partial analyses of shopping behavior patterns and several influencing factors. This includes research on online shopping behavior or shopping in physical stores. Comparative analysis of both channels is less utilized. Additionally, while there is much known about factors influencing consumer behavior, they are often assessed separately. Furthermore, there are numerous empirical studies from various countries worldwide. However, to evaluate general trends and the validity of theories, based on research from different regions of the world, it is necessary to verify these findings on a more global scale. Therefore, the contribution and methodological approach are based on comparative analysis and evaluation of the influence of multiple factors affecting the shopping behavior of Generation Z.

Research method

The research design is methodologically based on a questionnaire survey as the most common method of quantitative research on the topic (e.g., Teller & Reutterer, 2008; Jackson *et al.*, 2011; Dabija & Lung, 2018; Ng *et al.*, 2019; Trembošová *et al.*, 2022; Križan *et al.*, 2023, Putri *et al.*, 2024). Data

collection was carried out during the autumn and winter of 2019/2020. The questionnaire had a nationally representative scope, including respondents from larger cities of regional importance as well as smaller municipalities across the Czech Republic. The questionnaire comprised closed and open-ended questions and was disseminated through various online platforms, particularly Facebook and Instagram. It targeted the Generation Z cohort (aged 15–25) and required respondents to own a smartphone. The sample was created using a combination of random sampling, constrained by the age quota for Generation Z. The full scope of the survey was 2,037 observations (respondents). The questionnaire is available in Appendix 1.

The sample was further restricted to young people who do not have a main job and whose economic status is primarily a student. The exclusion of young people with the main economic status "employed" was justified by their significantly low representation in the population sample and their markedly different perception of money allocation for essential versus discretionary spending. Additionally, the decision was supported by the demographic trend indicating that the majority of individuals in this generation are currently enrolled in high school or university (ICSC, 2023; Sherwen, 2023). Thus, the research sample of 1,756 respondents was used in the subsequent analyses. Approximately 75% of respondents were women, 25% were men. This may indicate a higher level of involvement of women in shopping, which would confirm, for example, Jackson *et al.* (2011). Similarly, some authors also point to the higher willingness of women to participate in questionnaire surveys, especially in the online form (e.g., Pyyry, 2016; Mulder & de Bruijne, 2019).

The research focused on identifying the determinants that influence the shopping behavior of Generation Z. Specifically, it was interested in this population group's frequency of online shopping over time (shopping frequency). Shopping frequency was defined as a dependent binary variable capturing information about whether the respondent does shopping at least once a month, i.e., frequency=1, or less frequently, i.e., frequency=0. The frequency is directly related to the shopping behavior of the young population, which was interpreted using the independent variables (constants) described in the theoretical part of the paper (popularity of online shopping, use of modern technologies, discount codes, influencers, worries about data security and data leakage, different preferences in shopping behavior of men and women).

Since the explanatory variable is binary, two types of models were used for estimating the relationships (Koop, 2008). The first type was a linear probability model (LPM), and the second was a logit model. For both types of models, the relevance and quality of the estimates were compared according to the predictive ability of the specifications. In other words, it refers to how accurately the model can predict whether a respondent shops online at least once a month based on the chosen determinants. The independent variables entering the model with a longer description are written in Table 3. Their expected impact (EI) on the dependent variable frequency of shopping is listed in the second column of the table. The EI is based on the literature review discussed earlier. Symbol "+" means a positive impact on the frequency, symbol "-" means a negative impact on the frequency; and the question mark symbol "?" refers to the unexpected impact.

The considered determinants of the dependent variable *frequency of Generation Z representatives' shopping* were divided into two groups. The first group of independent variables was related to socio-demographic data. Within the final estimation, only the variables *age_over_15* and *city* were retained in the model, where the variable *age_over_15* indicated each additional year of the respondent older than 15 years. The variable *city* indicated whether the respondent was from a city with a population of over 100,000 people. The different stages of respondents' education were not considered due to the strong relationship between the variables *age_over_15* and *school*. Further, the gender of the respondents was considered creating interaction variables from the variable *gender* (*gender*=1 for male and *gender*=0 for female) and the variables describing individuals' shopping preferences. That allowed us to investigate the differential influence of preferences in the shopping behavior of men and women.

The second group of independent variables that could determine the shopping behavior of Generation Z based on shopping frequency was the group characterizing the use of smartphones or other mobile devices. This group included the variables *mobile_use*, *mobile_time*, *mobile_pay*, *online_shop*, *codes*, *influencers*, and *privacy_worries*. These variables were used to capture the respondent's ability to use a mobile device and their preferences and worries related to shopping online.

When modeling the data, the following relationship-based research questions (RQ) were asked:

RQ1: *What is the relationship between using smartphones and the frequency of online shopping?*

RQ2: *What is the relationship between respondents using discount codes and codes from influencers when shopping online and their frequency of online shopping?*

RQ3: *What is the relationship between worries about privacy and data security when shopping via smartphone and the frequency of online shopping?*

Results

Before presenting and discussing the results of the probabilistic models of the shopping behavior of the Czech Generation Z consumers, it is appropriate to briefly present results that could not be statistically modeled due to the nature of the responses.

One of them is their preferred way of shopping (Table 4). Compared to the *Retail Week* (2018) study, Czech young people are far more indecisive. About 54% of respondents do not differentiate between brick-and-mortar and online shopping; 34% explicitly prefer brick-and-mortar shopping (significantly more women). Only 12% prefer online shopping (with a slight majority of men). Despite the increasing range and popularity of online sales, brick-and-mortar stores could compete with this trend in the period just before the global pandemic closure of most shops and services.

The findings support, among other things, the results presented by the Association for Electronic Commerce on the state of Czech online shopping in 2018, when online shopping accounted for 11.4% of the Czech market (APEK, 2019). A year later, it accounted for 13% (APEK, 2020). Although referring to the whole Czech Republic, these figures declare the growing popularity of this way of shopping.

Among the factors that fundamentally influenced the decision of the Czech Generation Z to shop online (Table 5) was the price (41% of responses). Another factor for Czech respondents was convenience (32%). The dominant factor for buying in a brick-and-mortar store for the Czech young generation is the possibility of seeing the product in person and touch-

ing/trying it (74%). One explanation for this may be the tendency of the Czech young generation to eliminate blind shopping through e-shops, where the customer is often unsure of the correct parameters of the product (typically for clothes and footwear). Therefore, the opportunity to see and try the product is a crucial advantage of brick-and-mortar shopping, as evidenced also by ICSC (2023). The differences in decision-making between men and women were not significant.

In terms of the frequency of brick-and-mortar and online shopping, there were differences between the genders of Czech respondents (Table 6). With a frequency of approximately once a week, men shop more online (15%) and in the traditional way (18%) than women (11% online, 15% brick-and-mortar). Men are generally more inclined to shop online to save time for more important activities (Jirásková, 2016). A similar trend can be seen in the case of once-a-month shopping, where a larger share of men (50%) than women (42%) shop online, while more women (49%) than men (44%) shop in brick-and-mortar stores.

The share of women shopping online approximately once a quarter and once a year is higher than men, whereas the opposite is true for brick-and-mortar stores. The higher proportion of women shopping online with lower frequency may be influenced by seasonal sales in e-shops and more one-off shopping. The higher frequency of shopping for men can be explained by their generally clear ideas of what to buy. Men also tend to buy quickly (Jesenský, 2017). This information and facts are used by shopping center management for specifically targeted marketing tools.

Two types of models (LPM model and logit model) were used to identify the determinants of online shopping habits related to the monthly and more frequent online shopping of Generation Z representatives and to answer the research questions. The resulting estimates of both types of models are reported in Table 7. The reference group in both models consists of respondents living in municipalities with less than 100,000 inhabitants, with a minimal length of smartphone ownership, who do not make payments via smartphone, do not use discount codes, even from influencers, and have no worries about data security when shopping online. Furthermore, they are characterized by being thrifty, and therefore they spend little money on all groups of considered goods. This reference group is hypothetical and is mainly used to define and then clearly interpret the individual marginal effects. The overall explanatory power of the models is reported using the coefficient of determination (R^2) and prediction power

shown at the bottom of the table. Although the coefficients of determination are relatively low, the model still provides valuable information, as its predictive power is greater than random chance (50%).

In both types of models, the positive value represents a positive relationship between the dependent and independent variables. Conversely, the negative value represents a negative relationship. If an increase in the value of the independent variable increases the value of the dependent variable by 'x%', it will be interpreted as the marginal effect from the LPM model. For the logit model, the marginal effect can only be interpreted as a change in the average value of the variable. The statistical significance of each parameter is demonstrated using the p-value. Statistically significant coefficients at the significance level of 0.1 are in bold for clarity.

When focusing on the socio-demographic factors and their influence on the shopping behavior of the Czech Generation Z, it is not surprising that both models indicate that as the age of the respondent increases, the likelihood of monthly and more frequent online shopping increases. This result can be explained by the fact that as age increases, the respondent's income (more irregular, in the form of part-time jobs, when the primary status is a student) increases, and thus the variable *age_over_15* may well capture the increasing willingness to shop. Another possible explanation may be the respondent's increasing experience of using online payments, which may also be reflected in this variable. The variable *city*, capturing information on whether the individual is from a large city, is not statistically significant. Thus, respondents from large cities do not have different online shopping behavior compared to young people from smaller towns or rural areas. Similarly, the length of smartphone ownership or time spent on this device is not statistically significant for the frequency of online shopping.

On the contrary, the results revealed a statistically significant increase in the frequency of online shopping among respondents who use their smartphone for payment (according to the LPM model, there is an increase in the likelihood of about 10%), and among those who prefer online shopping to brick-and-mortar shopping (according to the LPM model, there is an increase in the likelihood of 20%). There is also a statistically significant link between the frequency of online shopping and the use of discount codes. If a respondent answered that they use discount coupons, then their likelihood of regular online shopping increases by 20% according to the LPM model.

A similar increase in the frequency of online shopping (by 16%) can be seen when using discount codes from an influencer. Within both model estimates, the variable *privacy_worries* came out both statistically significant and negative. This variable is the concern or even fear of Generation Z members about losing their data when shopping online via smartphone. According to the estimation of the LPM model, respondents who reported being afraid to shop online stated that they shop monthly or more often by 10.4% less than those who reported not being afraid to shop online. Even these specific and often sensitive facts must be thought of and respected by marketing strategists.

Discussion

Different generations of consumers have distinct shopping behaviors (Dabija & Lung, 2018; Agrawal, 2022; Štefko *et al.*, 2022), and the significance of understanding Generation Z's preferences is crucial for the future of retail, recognizing the heterogeneity within this demographic cohort (Priporas *et al.*, 2017). Given their close association with mobile technology (Van den Bergh & Behrer, 2016; Štefko *et al.*, 2022), Generation Z has a significant potential for e-commerce. This diverse demographic cohort represents the most significant marketing challenge (ICSC, 2023; Sherwen, 2023), even with respect to its unpredictability.

Several surprises also emerged from our findings. Contrary to expectations based on their tech-savvy reputation, only 12% of consumers univocally prefer online shopping, which is almost three times less than their preference for brick-and-mortar stores. On the other hand, a large proportion of young people make decisions on their shopping method based on convenience (or more precisely on undifferentiated preferences depending on the current situation), favoring the simpler and faster online purchase option in certain situations.

Our study confirmed gender differences in shopping behavior, evident not only in brick-and-mortar stores (Liu *et al.*, 2020) but also in online retail (Štefko *et al.*, 2022). The slight preponderance of women preferring traditional shopping to online shopping confirms a long-term trend of women having a very positive attitude toward physical shopping (Jackson *et al.*, 2011; Pyry, 2016; Križan *et al.*, 2018; Kunc *et al.*, 2020). Men, on the other hand, find the online environment more suitable and efficient for their

shopping needs (cf. Kanwal *et al.*, 2022). Despite an increase in online orders over the past few years, our study indicated that many respondents, regardless of gender, lack a clear shopping preference. Instead, decisions are often influenced by considerations such as price, reviews, or convenience.

Discount coupons (codes) are often used when shopping in hopes of finding the best deal, but they are often viewed as half-hearted by shoppers (Sutinen *et al.*, 2022). Coupon-prone consumers are price-conscious, and they usually consider themselves as market mavens and innovative (Martínez & Montaner, 2006). Coupons generally make online shopping more appealing to Czech young consumers, which is in line with other findings (Martínez & Montaner, 2006; Rakesh & Khare, 2012), but these are not general findings (cf. Gilbert & Jackaria, 2002; Shamout, 2016).

Some research from the period just before the pandemic (Ernst & Young, 2017; Križan *et al.*, 2018; *Retail Week*, 2018; Kunc *et al.*, 2020) has shown that brick-and-mortar stores are still largely competitive with the online environment and are not losing any significant popularity. On the other hand, the importance of online shopping has grown for a long time. It had some objective advantages over brick-and-mortar stores, which have only been accelerated by the global pandemic (Sarkar & Das, 2017; Acomware, 2018; Šimić & Pap, 2021; Šimek & Sadílek, 2024 and many others).

Moreover, the exploration of Generation Z shopping behavior should consider evolving factors, such as safety measures and cybersecurity threats (Chang *et al.*, 2023). Cybersecurity threats are another important aspect of Generation Z shopping behavior research. Smartphones are a fundamental tool for most people nowadays, and young generations make the most intense use of, and are strongly attached to, these devices (Mason *et al.*, 2022). Compared to other generations, trust among Generation Z is primarily derived from user-generated information (Herrando *et al.*, 2019), introducing cybersecurity risks that necessitate attention and mitigation strategies in the context of online shopping.

Improving and customizing online tools is becoming one of the biggest marketing challenges for retailers. Data from the pandemic era points to a 58% year-on-year growth in the global e-commerce market in the first quarters of 2020 and 2021. The use of mobile technology is also on an upward trend, with the volume of orders placed via mobile devices more than doubling globally over the period (*RetailNews*, 2021a). According to the

E-Commerce Association, the share of online shopping in Czech retail sales reached 16.2% in 2020, up 3.4 percentage points from a year earlier and ahead of forecasts by around three years (*RetailNews*, 2021b). Generation Z was an important contributor to this increase.

The main value of the research is a detailed analysis of the shopping behavior of Generation Z with an emphasis on online shopping and the use of smart technologies, which provides a deep insight into the preferences of the young population in the Czech Republic. Using applied models, in addition to the standard research findings on factors influencing shopping patterns and shopping frequency, the study focuses specifically on the use of discount codes and promo codes from influencers, and data security concerns. Another significant value of the research is the robust respondent sample and the period of the survey, which took place in autumn 2019 and winter 2020. It thus became an important value milestone when the consumer behavior of the young generation was not yet affected by the effects of the COVID-19 pandemic. These insights can be used to better target marketing campaigns and improve online shopping tools, which is relevant not only for the Czech market, but also for other countries with a similar socio-cultural environment. The results of the study can serve as a basis for further international comparative research and contribute to the understanding of global trends in the shopping behavior of young consumers.

Conclusions

The paper dealt with the shopping behavior of the Generation Z, with an emphasis on online shopping and using smart technologies. It focused on the preferences of the young Czech population when deciding between online and brick-and-mortar stores.

Addressing the first research question, which explored the link between smartphone use and its impact on the frequency of online shopping among the young generation, the findings revealed a nuanced scenario. While the average time spent on smartphones or prolonged smartphone use did not inherently elevate the likelihood of regular online shopping, engaging in transactions with smartphones heightened its probability of online shopping (RQ1).

Next, the investigation into the relationship between Generation Z's use of discount codes and influencer promo codes for online shopping un-

veiled a positive correlation. If respondents use discount coupons when shopping, they are more likely to shop online regularly. The same is true if they use promo codes from influencers (RQ2).

Another research question touched on the emerging online threats and cybersecurity issues as it dealt with the relationship between privacy and data security concerns when shopping via smartphone and their influence on the frequency of shopping. This question was answered positively using a model-based approach. If respondents worry about data security when online shopping, their likelihood of regular shopping decreases (RQ3).

In addition to the empirical findings on the factors influencing the choice of purchase method (online vs. brick-and-mortar) in the case of Generation Z consumers, with the help of applied models, we managed to identify the strength and significance of the factors influencing their purchasing. Demographic variables (age) have a more significant impact than spatial (residence) or social variables (mobile phone use) on the purchasing behavior of Generation Z consumers. Our findings complement existing thematic research tied to the theory of generations and consumer purchasing behavior. These findings are also beneficial in managerial practice when focusing your activities on Generation Z consumers to convert potential customers into real ones. Our research also revealed that influencer involvement has a significant impact on the intensity and frequency of purchases, which can be used in retailers' marketing strategies to increase the share of purchases in the Generation Z cohort. Marketers/retailers can use the findings of this study to develop more effective marketing strategies to better serve this generation of consumers. At the same time, they can rely on the knowledge about changed acute behavior compared to the pre-pandemic one.

Acknowledging the study's limitations, particularly pertaining to the research sample's size and the challenges of generalizing findings across diverse countries and markets, the paper highlighted the need for a more comprehensive consideration of various factors influencing shopping behavior. In the current state of knowledge, there are many factors influencing shopping behavior, but researchers only take into consideration a few of them. Even with the limitations, we believe our results provide useful information about consumer behavior within this specific market segment.

Future studies could identify other factors that influence consumer shopping behavior. This study offers a range of selected factors influencing shopping behavior, but is by no means exhaustive, which is one of the lim-

iting factors of our research, and our results must be interpreted in this context. On the other hand, it is possible to compare a few research findings with other studies across the academic world and thus expand the theoretical discussion and empirical base on this socially and economically relevant topic. At the same time, it is possible to replicate this research in the future based on the current post-pandemic situation and evaluate possible changes that have occurred in the behavior of Generation Z consumers.

The research, conducted soon before the COVID-19 pandemic, became a unique milestone, capturing the natural shopping behavior of the Czech young population before the pandemic-induced shift towards online shopping preferences. In this study, relevant empirical evidence is added to the theoretical knowledge base in the field of shopping behavior related to Generation Z. Despite the limitations of research, the results of this study are useful for understanding which marketing communication factors make a strong impact on customers, possibly leading to better marketing and business strategies.

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Annex

Table 1. Features of traditional and online shopping

Traditional shopping (a brick-and-mortar store)	Online shopping
Services provided by a shop assistant	Product description, search functions
Marketing support	Special offers, online competitions, and lotteries
Shop windows	Homepage
Atmosphere of the store	Website design, interface, quality of the graphics
Similar products placed in the aisle	Products recommended in several hierarchic levels
Layout and space disposition of the store	Color deepness, search functions
Number of floors in the store	Hierarchic levels of the store
Number of the store entrances and outlets	Number of links to a particular online store
Cash desk	An online shopping basket or ordering form
Possibility to see and touch the product	Quality of the picture, description
Number of customers entering the store	Number of visits paid to the Internet store
Turnover for a given period	Turnover for a given period

Source: Own processing based on Lohse and Spiller (1999).

Table 2. Features and (dis)advantages of online shopping

Feature	Description
Comfort	A fundamental difference lies in the possibility of online shopping anytime during the day, weekend, or nonworking days; followed by a delivery right to the place of destination.
Diversity	No brick-and-mortar store can offer as wide a range of products as an online store.
Reviews	A very important feature, which is not available at brick-and-mortar stores. Reviews provided by previous customers have a strong impact on the final decision of consumers – to buy or not to buy the given product or service.
Comparison of products	Personal comparison of the product quality and prices in brick-and-mortar stores is much more demanding, in terms of time and other conditions, than in an online environment.
Discounts	A very significant factor that has an impact on shopping is made above all by the younger generations. An advantage provided by online stores is expenses saved on brick-and-mortar store equipment, resulting in a larger number of discounts that can be offered to customers.
Availability of a unique product	Only some online stores offer a unique product that cannot be had in any other brick-and-mortar store, giving them a certain competitive advantage.
Tangibility and possibility of a personal experience	In this case, brick-and-mortar stores have a fundamental advantage when the customers can try (on) particular products or services; on the contrary, with online shopping they can only rely on stated information, pictures, videos, etc.
Shopping experience	Online shopping cannot be compared with the experience gained through real shopping (visual perception, colors, aroma/fragrance, etc.), which are sought by several consumers at weekends.

Table 2. Continued

Feature	Description
Delivery of ordered goods	A significant advantage of brick-and-mortar stores is the possibility to use the given product immediately. If the product is ordered online, the customer has to allow for a certain time period until the goods are delivered. Some products intended for immediate consumption have some limits in online shopping.
Returning the goods	If the product is purchased in a brick-and-mortar store, it is quite easy to return it, if necessary. In the case of online shopping, the customer is often forced to undergo a demanding process of communication with the store and finally must send the product back to the store.

Source: Own processing based on Sarkar and Das (2017).

Table 3. Description of variables finally entering the models

Abbreviation	E.I.	Description
age_over_15	+	Age of the respondent (15 years old=0, ..., 25 years old=10)
city	?	Residence in a city with a population of over 100,000 people (1=yes, 0=no)
mobile_use	+	The length of smartphone ownership (in years)
mobile_time	?	Smartphone usage time (in hours)
mobile_pay	+	Payments via smartphone application (1=yes, 0=no)
online_shop	+	Preference to shop online over brick-and-mortar alternatives (1=yes, 0=no)
codes	+	The habit of using discount codes when shopping (1=yes, 0.75= rather yes, 0.25=rather not, 0=no)
influencers	+	The habit of using discount codes offered by influencers (1=yes, 0.75= rather yes, 0.25=rather not, 0=no)
privacy_worries	-	Worries about data security when shopping online (1=yes, 0=no)

Table 4. The preferred method of shopping of the Czech Generation Z

Method of shopping	Men	Women	Totally
Online shopping	17%	11%	12%
Brick-and-mortar shopping	22%	38%	34%
Undifferentiated preferences depend on the current situation	61%	51%	54%

Table 5. Factors influencing the method of shopping of the Czech Generation Z

Brick-and-mortar shopping		Online shopping	
Possibility to see/try (on) the product	74%	Price	41%
Price	20%	Comfort	32%
Specific brand	3%	Reviews	17%
Comfort	2%	Specific brand	6%
Possibility to return the product	1%	Possibility to return the product	2%
Services provided by a shop assistant	0%	Delivery time	2%

Table 6. Frequency of shopping of the Czech Generation Z

Frequency of shopping	Men	Online shopping	Women	Online shopping
	Brick-and-mortar shopping		Brick-and-mortar shopping	
About once a week	18%	15%	15%	11%
About once a month	44%	50%	49%	42%
About once a quarter	32%	23%	31%	31%
Once a year	6%	12%	4%	16%

Table 7. Modulation of factors influencing the shopping behaviour of the Czech Generation Z

Independent variable	Frequency			
	LPM		Logit	
	β	sig.	marg. effect	sig.
const.	-0.068	0.446	-	0.000
age_over_15	0.036	0.000	0.041	0.000
city	-0.015	0.525	-0.016	0.575
mobile_use	0.005	0.369	0.005	0.356
mobile_time	0.005	0.327	0.007	0.300
mobile_pay	0.104	0.000	0.113	0.000
online_shop	0.207	0.000	0.242	0.000
codes	0.207	0.000	0.240	0.000
influencers	0.166	0.004	0.219	0.003
privacy_worries	-0.104	0.000	-0.118	0.000
R ²	0.13		0.09	
Prediction power	65.6%		65.7%	

Appendix

Smartphone Usage and Online Shopping Habits Questionnaire

Introduction:

Thank you for participating in this survey about smartphone usage and online shopping habits. This survey is part of a research project conducted under the umbrella of Masaryk University, with methodological contribution from Comenius University Bratislava. Your responses will help us understand trends and behaviors among Gen Z. This survey is anonymous, and all information you provide will be kept confidential. It should take approximately 5-10 minutes to complete.

Questions:

1) At what age did you get your first smartphone?

Please specify (in years): _____

2) On average, how much time do you spend on your smartphone daily?

Please specify (in hours): _____

3) Do you use your smartphone for payments (e.g., Apple Pay, Google Pay, or payment cards stored on your smartphone)?

- a. Yes
- b. No

4) Do you shop online, including ordering food for delivery?

- a. Yes, approximately once a week or more
- b. Yes, approximately once a month
- c. Yes, approximately once every three months
- d. Yes, approximately once a year or very rarely
- e. No, I do not shop online

5) Do you prefer shopping in physical stores or online?

- a. In physical stores
- b. Online
- c. I don't have a preference; it depends on the situation

6) How often do you use discount coupons in mobile apps while shopping?

- a. Always
- b. Quite often
- c. Very rarely
- d. Never

7) How often do you use discounts or promo codes presented by influencers on social media when shopping?

- a. Always
- b. Quite often
- c. Very rarely
- d. Never

8) Are you concerned about your personal data being stolen (e.g., from your smartphone or social media)?

- a. Yes
- b. No

9) What is your gender?

- a. Male
- b. Female
- c. Prefer not to say

10) What is your main source of income?

- a. Employment
- b. Part-time job
- c. Allowance

11) What is your current status?

- a. Student
- b. Employed
- c. Unemployed
- d. On maternity leave

12) How old are you?

Please specify (in years): _____

13) Which town or city are you from?

Please specify (zip code): _____

Conclusion:

Thank you for taking the time to complete this survey. Your insights are greatly appreciated and will contribute to our understanding of Gen Z's smartphone usage and online shopping behavior. If you have any questions or concerns about this survey, please feel free to contact us via marketa.novotna@econ.muni.cz.