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# MOBILE PHONE AS A MEANS OF COMMUNICATION WITH GENERATION Z CONSUMERS IN RETAIL

**Daniela Kollárová** | Doc. dr. Associate professor, Faculty of Mass Media Communication, Trnava, Slovakia; daniela.kollarova@ucm.sk; ORCID ID: 0000-0002-6923-5057

**Miriama Koliščáková** | PhD candidate, Faculty of Mass Media Communication, Trnava, Slovakia; koliscakova1@ucm.sk; ORCID ID: 0000-0002-5512-3740

**Andrej Trnka** | Doc. dr. Associate professor, Faculty of Mass Media Communication, Trnava, Slovakia; andrej.trnka@ucm.sk; ORCID ID: 0000-0001-7940-0709

*Abstract: The aim of the research was to determine the extent and purpose of using mobile phones by Generation Z consumers before, during and after shopping in brick-and-mortar stores. The stratified group consisted of 785 residents of the Slovak Republic born between 1997 and 2012 inclusive. The survey has been conducted using the inquiry method - an online questionnaire based on the Google Forms platform. The questions were formulated into three logically interconnected parts: the purpose of using the mobile phone by the respondents in the phase before, during and after the purchase in a brick-and-mortar store. In addition, we also examined the respondents' activity on social networks during the purchase in the brick-and-mortar store and, finally, demographic data. We formulated two hypotheses and three assumptions. One hypothesis and one assumption were confirmed. On the contrary, one hypothesis was disproved, and two assumptions were not confirmed. The hypothesis focused on the relationship between the main ways of using a mobile phone and the activity on social networks during shopping in a brick-and-mortar store was confirmed. The hypothesis focused on the relationship between the gender of consumers and the use of a mobile phone during shopping in a brick-and-mortar store was disproved. The assumption regarding the use of a mobile phone while shopping for food in a brick-and-mortar store for the purpose of comparing product prices was confirmed. The assumption regarding the use of a mobile phone while shopping for consumer electronics in order to search for product information was not confirmed. Likewise, the assumption regarding the use of a mobile phone while shopping for clothes in a brick-and-mortar store in order to connect with friends or acquaintances in order to ask for their advice was not confirmed. These findings are beneficial for retail practice operating a chain of brick-and-mortar stores.*

*Keywords: Generation Z, communication, mobile phone, retail*

*JEL classification: L81, M31, D12, E21*

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## INDTRODUCTION

As a result of technological advances, retailers have more and more options available to them that represent a high potential to improve the buying experience for customers. (Grewal, Noble, Roggeveen & Nordfalt, 2020) With this advancement, a large proportion of customers have access to use their mobile phones in brick-and-mortar stores, allowing them to receive new information at the place of purchase. (Fang, Liu, Li & Cai, 2021) At the same time, the mobile phone can be one of the biggest influencing factors of consumer buying behavior during retail shopping.(Nasir, 2016) Customers use their mobile phones while shopping in a brick-and-mortar store for a variety of tasks, such as: checking their shopping list, searching for special offers, searching for products from a competitor or for product reviews. Today, it is customers who set the trend and this consumer behavior tells retailers to constantly look for new ways to reach their customers and enable them to shop conveniently and hassle-free in their place of business.

Scientific sources agree that the subject of consumer behavior research is the study of how individuals and households make decisions to satisfy their needs and how they spend their resources (money, time, and energy) on consumption. It is mainly about researching what consumers buy, why and how do they buy it and when, where, and how often do they buy it. However, the most important questions are how and why consumers decide to buy products. Moreover, the subject of research is also mental and social processes that take place before the purchase itself (e.g., awareness of a need, forming an attitude, searching for information, evaluating alternatives, choosing a product, brand or store) and after the purchase itself (e.g. consumption process, evaluation of usefulness). The aim is to find out the willingness and frequency of further purchases, the reasons for changing products (physical or moral wear and tear), interest in technical product innovations or respect for the principles of sustainable consumption. Knowing consumers and their behavior is the starting point for any business' marketing activities.

In the presented study, we focus on researching the use of a mobile phone as a means of communication in the sense of a medium that conveys information to consumers using textual, visual, audio and audio-visual means of expression during shopping in a retail store.

In the study, we focus on investigating the use of the mobile phone as a means of communication during shopping in a retail store. We focus mainly on Generation Z, as it is this generation that constitutes a challenging group of customers for businesses and represents approximately a quarter of the world's population (EY, 2020). Another reason for researching Generation Z is that this generation has grown up in a digital environment from an early age and are therefore no strangers to the use of mobile phones. We also declare this based on the results of the GlobalWebIndex research (2021) from which we learn that 51% of generation Z check their phone every few minutes, in contrast to generation Y (45%), generation X (31%) or the generation of Baby Boomers (17 %). (Digital Information World, 2021)

The presented study consists of six parts: Introduction, Literature Overview, Methodology, Empirical Evidence, Results and Discussion, Conclusion. In the Introduction, we specify the research subject, research motives, research area, and table xy shows the research questions, goal, and established hypotheses. The Literature Over-

view includes an overview of relevant literature in the researched area, based primarily on respected scientific journals and book publications. In Methodology, we characterize the work procedures, the method of data acquisition, the evaluation methods used and the interpretation of the results. In Empirical Evidence, we interpret the results found and compare them with the results of similar research from the recent past. Subsequently, in the Results and Discussion, we focus on clarifying the meaning of the given study and applying the results and recommendations for further investigation. At the end of the study, we discuss the initial research questions, goals and hypotheses that we clarified at the beginning of the study. We assess the results of the research and the significance of its implementation with reference to the identified limitations and recommendations for future research.

**Table 1.** Research assumptions and hypotheses

| | WORDING | ASSUMPTIONS 0 HYPOTHESIS 0 | ASSUMPTIONS 1 /HYPOTHESIS 1 |
|---|---|---|---|
| H 1 | Is there a relationship between consumer gender and mobile phone use during shopping in a brick-and-mortar store? | H0: There is no statistically significant relationship between the gender of consumers and the use of a mobile phone while shopping in a brick-and-mortar store, the variables are independent. This means that it does not matter what the gender of the consumer is and whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store. | H1: There is a statistically significant relationship between consumer gender and mobile phone use while shopping in a brick-and-mortar store, therefore the variables are dependent. This means that consumer gender matters as well as whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store. |
| H 2 | Is there a relationship between primary mobile phone usage and social media activity during shopping in a brick-and-mortar store? | H0: There is no statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks, the variables are independent. This means that there is no relationship between how the consumers use their mobile phones and how active they are on social networks. | H1: There is a statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks, the variables are dependent. This means that there is a relationship between the way consumers use their mobile phone and their activity on social networks. |
| A1. | We estimate that at least 45.7% of consumers who frequently use their mobile phone when shopping for clothes use it to connect with their friends or acquaintances and ask for advice while shopping for clothes in a brick-and-mortar store. | H0: At least 45.7% of consumers who frequently use their mobile phone when shopping for clothes use it to contact their friends or acquaintances and ask for advice. | H1: At least 45.7% of consumers who frequently use their mobile phone when shopping for clothes do not use it to contact their friends or acquaintances for advice. |

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| | | | |
|---|---|---|---|
| A2. | We estimate that at least 53% of consumers use their mobile phone to search for product information while shopping for consumer electronics in a brick-and-mortar store. | H0: At least 53% of consumers who frequently use their mobile phone when shopping for consumer electronics use it to search for product information. | H1: At least 53% of consumers who frequently use their mobile phone to shop for consumer electronics do not use it to search for product information. |
| A3. | We estimate that at least 21.4% of consumers use their mobile phone to compare product prices while shopping for food in a brick-and-mortar store. | H0: At least 21.4% of consumers who frequently use their mobile phone for grocery shopping use it to compare product prices. | H1: At least 21.4% of consumers who frequently use their mobile phone for grocery shopping do not use it to compare product prices. |

**Source:** (Own Processing)

## LITERATURE OVERVIEW

We are witnessing a new revolution driven by information technology (Schwab, 2016). We live in a constantly changing world accompanied by continuous innovation, where science fiction often turns into science fact. The biggest changes in recent human history that have taken place over the past decade are innovations in the field of technologies and digitization, which have already partially changed how society works, but continue to affect not only our lives, but all businesses, areas, and industries (Tolić, Sabljić & Sablijić, 2020). According to data from Datareportal (2023), a total of 5.16 billion people use the Internet worldwide, which corresponds to 64.4% of the total world population. With easy access to the Internet, mobile phones are becoming a ubiquitous part of our daily lives. The number of unique mobile users is growing at a rate of 3.2% per year and there are currently 5.44 billion unique mobile users in the world (GSMA, 2023). Even in the retail environment, mobile phones represent a powerful tool that has the potential to revolutionize the way retailers communicate with their customers. Several authors deal with the issue of using mobile phones in retail (Burke, 2022; Fong, Fang & Luo, 2015, Bues et al., 2017). The availability of Wi-Fi, the use of mobile applications as well as virtual or augmented reality are changing the way we look at the buying experience in retail. Consumers spend a lot of time using their mobile phones and many prefer to communicate with brands outside of the "real world" (Perčić & Perčić, 2021). The use of mobile phones in retail thus gradually raises various questions among academics and retailers (Cavalinhos, Henriques-Marques & Salgueiro,2021). Consumers become more and more demanding. It is no longer enough for them to just come and buy, but they have different buying goals when using a mobile phone in a brick-and-mortar store. These are usually specific goals such as finding the product with the best price (saving money), convenience (saving time and effort), finding the product that best suits their needs (finding the most suitable product), or abstract goals such as the pleasure of shopping (entertainment, discovering new products) (Punj, 2022). According to a recent study, up to 34% of consumers worldwide regularly use their smartphones while shopping in a retail store to check prices, access discount codes, or even search for in-store items. Last year, this number represented 27% and experts' forecasts agree that this trend will have an upward tendency (Pymnts, 2022). New trends, together with the development of technologies, create a new generation of customers, which forces retailers to move closer to experi-

ential buying (Neosperience, 2015). However, it is also important to realize that the use of mobile phones by consumers in retail can lead to decreased attention of customers to products. It is possible that as consumers focus more on their phones, they pay less attention to the products on the shelves, and thus their phone use may lead to an overall reduction in purchases. On the other hand, it may also be the case that this distraction will have the opposite effect on them, and consumers will end up buying more goods (Grewal, Ahlbom, Beitelspacher, Noble & Nordält, 2018). The consumer behavior of each customer is often unpredictable. However, we dare to say that the use and correct setting of the mobile marketing strategy in the purchase process by retailers can offer customers a better buying experience.

The results of a study conducted across 13 countries around the world show that many buyers begin their buying journey first by researching online using their mobile phones, even before visiting a store. This personal "survey" of theirs is also called "webrooming" and plays an important role during the retail buying process. The study further points to the importance of personalized communication with customers (Klarna Insights, 2021). Author Bues (Bues et al. 2017) and author Roy (Roy et al., 2017) also refer to its importance and emphasize the need for highly personalized communication with specific customers in the retail buying process. The segmentation of customers and their division into certain groups can be a useful tool for achieving personalized communication with customers. There are several customer segmentation typologies. As an example, we can state some of them: constitutional typology focused on the physical structure of a person, typology based on character traits, typology based on the examination of personality traits and characteristics, typology based on the examination of the dimension of friendliness and leadership, typology based on the analysis of lifestyle, typology based on behavioral motives, typology directly linked to consumer behavior, but also a typology based on age – a generational typology based on age of customers (Tseng & Piller 2003; Vysekalová, 2004; Bačuvčík, 2017).

According to many authors, the biggest challenge of the future for retail seems to be the young Generation Z (Priporas, Stylos, Fotiadis, 2017). This generation has a positive inclination towards the virtual world (Bartolović, Bratanić a Mađarac 2022) and online media (Stefańska & Śmigielska, 2020) and possesses the necessary information literacy (Todić & Dajić, 2018). There is no specific time frame for an exact dating of this generation and the opinions of many experts differ on the issue of the age limit of this generation. Resolution Foundation, a British independent organization, dates Generation Z from 2001 (Resolution Foundation, 2018) and the Canadian government agency Statistics Canada and Pew Research Center organization define it from 1997 to 2012 (Canada Statistics, 2022, Pew Research Center, 2019). Generation Z has a diametrically different behavior from other generations, and as the only generation with a purchasing power (excluding the Alpha generation), it grew up in a digital environment from an early age. Geffet and Blau conducted a study that surveyed Gen X, Gen Y, and Gen Z consumers about their smartphone expectations. They found that Generation Z has the greatest emotional connection with their mobile phone compared to the other two generations (Priposas, Stylos, Fotiadis, 2017). This generation cannot imagine life without smartphones and without the existence of social media (Fromm, 2018). Many companies are also aware that Generation Z is more visually oriented than other generations. This leads businesses to overcome language barriers and regularly communicate in the form

of videos and photos, instead of words (Mc Crindle, 2014). According to the results of the research by Afterpay, which was carried out in the USA in November 2022 on a sample of 1018 respondents of Generation Z, Y and X, we learn that 40% of Gen Z consumers prefer online shopping to physical shopping in a store, which is the most of all generations. For Generation Y this number represents 35% and 27% for Generation X. However, Generation Z's reasons for shopping online are significantly different from other generations. While Millennials (Generation Y) and Generation X prefer to shop online because shopping is available to them 24 hours a day, 7 days a week, Generation Z prefers to shop online due to the easier search and more customizable environment through digital devices (Afterpay, 2022). The First Insight study brings surprising results. The study was conducted on 1000 respondents in the USA and focused on the buying habits and purchasing behavior of consumers. It turns out that customers spend significantly more in a brick-and-mortar store, where they often buy impulsively, than when they shop online. The survey shows that 71% of respondents (72% of men; 70% of women) spend more than $50 when shopping in a brick-and-mortar store. Unlike 54% of respondents (59% of men; 49% of women) who spend more than $50 shopping online (First Insight, 2019). From the aforementioned studies and research, it is clear to us that Generation Z customers prefer using digital elements and tools during shopping. One of the ways to attract more customers to a brick-and-mortar store can be the proper use of these digital elements, as well as mobile devices, which will make the buying process easier for customers and create a unique buying experience for them.

## METHODOLOGY

The object of the research are Slovak consumers born between 1997 and 2012 inclusive, falling in terms of age under Generation Z and their use of mobile phones before, during and after shopping in brick-and-mortar stores. We followed this age limit based on the definitions of the Canadian government agency Statistics Canada and the American organization Pew Research Center.

The survey has been conducted using the inquiry method - an online questionnaire based on the Google Forms platform. The questionnaire contained 16 questions of which 7 were closed-ended, 2 were open-ended and 7 were semi-closed. The questions were formulated into three logically interconnected parts: the purpose of using the mobile phone by the respondents in the phase before, during and after the purchase in a brick-and-mortar store. In addition, we also researched the respondents' activity on social networks and the evaluation of the benefit of the mobile phone use in the phase before, during and after the purchase in a brick-and-mortar store. The implementation of the presented research was preceded by a pilot test of the questionnaire and preliminary research. We conducted a pilot test of the questionnaire on a sample of 22 respondents in the months of March to April 2022, and we conducted preliminary research on a sample of 57 respondents in the months of October to November 2022. We conducted the main research in the period from 26/09/2022 to 16/12/2022. We ensured the distribution of the questionnaire in three ways: a publicly available unique QR code that redirected respondents to fill out the questionnaire, a hyperlink sent to the respondents' e-mail addresses, and direct contact with the respondents addressed through social networks. We processed the questionnaire results using the statistical software IBM® SPSS® Statistics and evaluated them using statistical methods.

The basic starting point was a literature overview of published outputs from respected scientific journals and book publications in the field of researching consumer behavior and the use of mobile phones before, during and after shopping in a brick-and-mortar store. Based on the findings from the literature overview and the assessment of the results of our own investigation, we formulated the research objective, hypotheses and assumptions. The hypotheses are aimed at finding out the existence of statistically significant associations between the gender of consumers and the use of a mobile phone during shopping and between the main ways of using a mobile phone and activity on social networks during shopping in a brick-and-mortar store. The assumptions are aimed at verifying the connection between the purchased assortment and the use of a mobile phone during the purchase. Subsequently, we tested the formulated hypotheses using the Pearson's chi-squared test and we tested the associations of the assumptions using the Z-score test. We interpret the obtained results in charts and compare them with the results of similar research from the recent past. We point out the identified limitations of the interpretation of research results and formulate recommendations for future research. Based on the research results, we formulate perspectives on the future development of mobile phone use during brick-and-mortar shopping, as well as perspectives for future research areas.

Pearson's chi-squared test is based on a frequency table and compares the frequency distribution in individual categories with the expected frequencies (Rimčík, 2007). A significant value of the statistic ($P < 0.05$) leads to disproving the hypothesis H0 about the agreement of the distribution with the expected one. The Z-score of the proportion test is a calculated value, the so-called test characteristic. The Z-score follows a standardized normal probability distribution. Its value is compared with statistical tables and in our case, if $Z<Z(\alpha)$, we disprove the null hypothesis H0.

## EMPIRICAL EVIDENCE

The presented study examines the use of mobile phones by Gen Z consumers before, during and after shopping in brick-and-mortar stores. The stratified group consisted of residents of the Slovak Republic born between 1997 and 2012 inclusive, falling in terms of age under Generation Z, i.e., the decisive criterion in the selection was age. In order to ensure the relevance and generalizability of the research results to the entire Generation Z in Slovakia, we used the following formula to calculate the required sample size. At the same time, we present an explanation of the formula with the values used.

$$n = \frac{z^2 \times \sigma^2 \times \left(\frac{N}{N-1}\right)}{e^2 + \left(z^2 \times \frac{\sigma^2}{N-1}\right)}$$

Legend:
Population size (N) = 887117,
Margin of Error (e) = 4 %,
Response distribution ($\sigma$) = 50,
Confidence Level (z) = 95 %,
Ideal Sample Size (n) = 600,

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According to information from the public database DATAcube, 887,117 people belonging to generation Z will live in Slovakia by 2023, which forms our basic set (DataCube, 2023). We set the level of confidence, or accuracy, at 95%. We determined the value 4 as the confidence interval, which is also given as the Margin of Error. After entering these data into the formula for calculating the sample, we found that exactly 600 respondents need to be obtained for the relevance of the research results. In the end, we obtained answers from 786 respondents. By testing the hypotheses using the Pearson's chi-squared test and the association of the assumptions using the Z-score test of the proportion, we found the following.

Is there a relationship between consumer gender and mobile phone use during shopping at a brick-and-mortar store?

H0: There is no statistically significant relationship between the gender of consumers and the use of a mobile phone while shopping in a brick-and-mortar store, the variables are independent. This means that it does not matter what the gender of the consumer is and whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store.

H1: There is a statistically significant relationship between consumer gender and mobile phone use while shopping in a brick-and-mortar store, therefore the variables are dependent. This means that consumer gender matters as well as whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store.

**Table 2.** Usage of mobile phone while shopping

**Sex * Using a mobile phone while shopping Crosstabulation**

Count

| | | Using a mobile phone while shopping | | Total |
|---|---|---|---|---|
| | | no | yes | |
| Sex | female | 27 | 468 | 495 |
| | male | 29 | 262 | 291 |
| Total | | 56 | 730 | 786 |

**Source:** (Own Processing)

**Table 3.** Chi-Square Tests

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|---|---|---|---|---|---|
| Pearson Chi-Square | 5,636a | 1 | ,018 | | |
| Continuity Correctionb | 4,975 | 1 | ,026 | | |
| Likelihood Ratio | 5,443 | 1 | ,020 | | |
| Fisher's Exact Test | | | | ,021 | ,014 |
| Linear-by-Linear Association | 5,629 | 1 | ,018 | | |
| N of Valid Cases | 786 | | | | |

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 20,73.
b. Computed only for a 2x2 table

**Source:** (Own Processing)

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According to the Pearson's Chi-Square test, the calculated value of which is 5.636 and the associated statistical significance of 0.018, we accept the alternative hypothesis H1 ($p<0.05$).

We estimate that at least 45.7% of consumers who frequently use their mobile phone when shopping for clothes use it to connect with their friends or acquaintances for advice while shopping for clothes in a brick-and-mortar store.

H0: At least 45.7% of consumers who frequently use their mobile phone when shopping for clothes use it to contact their friends or acquaintances to ask for their advice.

H1: At least 45.7% of consumers who often use their mobile phone when shopping for clothes do not use it to contact their friends or acquaintances to ask for their advice.

**Table 4.** Usage of mobile phone while shopping clothes

**Using a mobile phone while shopping clothes * Ask for advice Crosstabulation**

Count

|  |  | Ask for advice | | Total |
|---|---|---|---|---|
|  |  | no | yes |  |
| Using a mobile phone while shopping clothes | barely | 142 | 36 | 178 |
|  | rarely | 187 | 60 | 247 |
|  | often | 212 | 93 | 305 |
| Total |  | 541 | 189 | 730 |

**Source:** (Own Processing)

Of the 305 respondents who often use a mobile phone when buying clothes, only 93 asked a friend or acquaintance for advice. According to the Z-score of the proportion test, the value of which is -5.332 and the established confidence level $α=0.05$, we accept the alternative hypothesis H1.

We estimate that at least 53% of consumers use their mobile phone to search for product information while shopping for consumer electronics in a brick-and-mortar store.

H0: At least 53% of consumers who frequently use their mobile phone to shop for consumer electronics use it to search for product information.

H1: At least 53% of consumers who frequently use their mobile phone to shop for consumer electronics do not use it to search for product information.

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**Table 5.** Usage a mobile phone while shopping

**Using a mobile phone while shopping electronics * Finding product information Crosstabulation**

Count

| | | Finding product information | | Total |
|---|---|---|---|---|
| | | no | yes | |
| Using a mobile phone while shopping electronics | barely | 53 | 20 | 73 |
| | rarely | 147 | 64 | 211 |
| | often | 281 | 165 | 446 |
| Total | | 481 | 249 | 730 |

**Source:** (Own Processing)

Of the 446 respondents who often use a mobile phone to buy electronics, 165 of them use it to search for product information. According to the Z-score of the proportion test, the value of which is -6.772, and the established confidence level α=0.05, we accept the alternative hypothesis H1.

We estimate that at least 21.4% of consumers use their mobile phone to compare product prices while shopping for food in a brick-and-mortar store.

H0: At least 21.4% of consumers who frequently use their mobile phone for grocery shopping use it to compare product prices.

H1: At least 21.4% of consumers who frequently use their mobile phone for grocery shopping do not use it to compare product prices.

**Table 6.** Usage of a mobile phone while shopping food

**Using a mobile phone while shopping food * Price comparison Crosstabulation**

Count

| | | Price comparison | | Total |
|---|---|---|---|---|
| | | no | yes | |
| Using a mobile phone while shopping food | barely | 184 | 127 | 311 |
| | rarely | 176 | 100 | 276 |
| | often | 104 | 39 | 143 |
| Total | | 464 | 266 | 730 |

**Source:** (Own Processing)

Of the 143 respondents who often use their mobile phone when buying food, 39 of them use it to search for product information. According to the Z-score of the proportion test, the value of which is 1.712, and the established confidence level α=0.05, we accept the null hypothesis H0.

Is there a relationship between primary mobile phone usage and social media activity during shopping in a brick-and-mortar store?

H0: There is no statistically significant relationship between the way a mobile

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phone is used while shopping and activity on social networks, the variables are independent. This means that there is no relationship between how the consumers use their mobile phones and how active they are on social networks.

H1: There is a statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks, the variables are dependent. This means that there is a relationship between the way consumers use their mobile phone and their activity on social networks.

**Table 7.** Activity on social networks while shopping in a brick-and-mortar store

**Activity on social networks**

| | | Are you active on social networks while shopping in a brick-and-mortar store? | |
|---|---|---|---|
| | | **No** | **Yes** |
| | | **Count** | **Count** |
| While shopping in a brick-and-mortar store, you use your mobile phone to | pay for your goods | 227 | 230 |
| | search for discount offers | 62 | 73 |
| | track your shopping list | 104 | 103 |
| | look up information about a product or brand | 77 | 85 |
| | look up reviews about a product or brand | 81 | 86 |
| | save the product to obtain additional information | 64 | 61 |
| | look up information about competing products or brands | 25 | 34 |
| | compare prices with the merchant's/brick and mortar store's competition | 81 | 75 |
| | compare prices with online stores | 86 | 96 |
| | use discount coupons from a mobile application or loyalty program | 133 | 133 |
| | continuously monitor the total value of the purchase | 17 | 18 |
| | contact your acquaintances and ask for advice | 75 | 112 |

**Source:** (Own Processing)

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**Table 8.** Pearson's Chi-Square Tests

**Pearson's Chi-Square Tests**

| | | You're on social media while shopping in a brick-and-mortar store |
|---|---|---|
| While shopping in a brick-and-mortar store, you use your mobile phone to | Chi-square | 20,932 |
| | df | 12 |
| | Sig. | ,051 |

Results are based on nonempty rows and columns in each innermost sub table.

**Source:** (Own Processing)

According to the Pearson's Chi-Square test, the calculated value of which is 20.932, and the corresponding statistical significance is 0.051, we accept the null hypothesis H0 (p>0.05).

### RESULTS AND DISCUSSION

The aim of the research was to determine the extent and purpose of using mobile phones by Generation Z consumers before, during and after shopping in brick-and-mortar stores. The stratified group consisted of residents of the Slovak Republic born between 1997 and 2012 inclusive, falling in terms of age under Generation Z, i.e. the decisive criterion in the selection was age. We conducted the research using the inquiry method, using an online questionnaire based on the Google Forms platform. The questionnaire contained 16 questions. The questions were formulated into three logically interconnected parts: the purpose of using the mobile phone by the respondents in the phase before, during and after the purchase in a brick-and-mortar store. In addition, we also researched the respondents' activity on social networks and the evaluation of the benefit of the mobile phone in the phase before, during and after the purchase in a brick-and-mortar store. We conducted the main research in the period from 9/26/2022 to 12/16/2022 and 786 respondents provided their answers.

The results of testing the first hypothesis show a statistically significant relationship between gender and whether or not a consumer uses a mobile phone while shopping in a brick-and-mortar store. According to the Pearson's Chi-Square test, the calculated value of which is 5.636, and the associated statistical significance of 0.018, we accept the alternative hypothesis H1 (p<0.05). In percentage terms, we found that only 5.45% of women and 10% of men do not use a mobile phone while shopping in a brick-and-mortar store. These findings are in line with the findings of a study conducted by Kiba-Janiak (2014) on a sample of 408 respondents aimed at researching the extent and purpose of using mobile phones when shopping in brick-and-mortar stores. For example, comparing the price in a brick-and-mortar store with the price on the Internet, calling a friend or loved one for advice, scanning barcodes, paying with a mobile phone. Through research, she found that 32.7% of women and 23.9% of men do not use mobile phones in the store at all. Thus, albeit with a time gap, it is still true that more women than men use a mobile phone while shopping in a brick-and-mortar store.

The results of testing the second hypothesis do not show a statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks. According to the Pearson's Chi-Square test, the calculated value of which

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is 20.932, and the associated statistical significance of 0.051, we accept the null hypothesis H0 (p>0.05). However, in percentage terms, we found that 47% of respondents use their mobile phone while shopping in a brick-and-mortar store with the intention of being active on social networks. Taskin & Yukselen (2019) conducted a study on a sample of 306 respondents aimed at investigating the role and influence of social media (from the text it follows that by social media they mean social networks) on consumer behavior before and after purchase. The findings demonstrated that there is a relationship between the frequency of social media use and its impact on purchasing behavior. Unlike Taskin & Yukselen, we focused our research on the phase of consumer behavior during the purchase, as in practice the trend of using social networks as information search engines is getting stronger at the expense of traditional internet search engines, such as Google or Yahoo. A 2016 Deloitte study (Deloitte 2016) already showed that 15% of respondents are active on social media while shopping in a brick-and-mortar store which is consistent with our findings regarding social media activity. However, according to our findings, the percentage of active users is significantly higher.

The results of testing the first assumption did not confirm our expectations formulated on the basis of the results of the study by Nasir and Kurtulus (2016), who, on a sample of 593 respondents, researched the purpose and frequency of using mobile phones when shopping in a brick-and-mortar store. One of the sub-tasks was to investigate the use of mobile phones when shopping for a variety of products: clothing, consumer electronics, household goods, food and books, CDs and DVDs. The authors found that while shopping for clothes, 45.7% of respondents used their mobile phone to contact their friends or acquaintances and ask them for advice, which is not consistent with our findings, as according to our findings, only 30.49% of respondents use a mobile phone to contact their friends or acquaintances for advice while shopping for clothes. Of the 305 respondents who often use a mobile phone when buying clothes, only 93 asked a friend or acquaintance for advice. According to the Z-score of the proportion test, the value of which is -5.332, and the established confidence level $\alpha$=0.05, we accept the alternative hypothesis H1.

Nasir and Kurtulus (2016) further found that 53% of respondents used a mobile phone to search for product information while shopping for consumer electronics. The results of testing our second hypothesis did not support the hypothesis formulated on the basis of their findings. According to our findings, in percentage terms, only 37% of respondents use a mobile phone to look up product information while shopping for consumer electronics. Of the 446 respondents who often use their mobile phone to buy electronics, 165 use it to search for product information. According to the Z-score of the proportion test, the value of which is - 6.772, and the established confidence level $\alpha$=0.05, we accept the alternative hypothesis H1.

The results of testing the third assumption confirmed our expectations, formulated on the basis of the results of the study by Nasir and Kurtulus (2016), that at least 21.4% of consumers use their mobile phone to compare product prices while buying food in a brick-and-mortar store.

Of the 143 respondents who often use their mobile phone when buying food, 39 use it to search for product information. According to the Z-score of the proportion test, the value of which is 1.712, and the established confidence level $\alpha$=0.05, we accept the null hypothesis H0.

According to our findings, as many as 27.27% of respondents used a mobile phone to compare product prices when buying food.

**Table 9.** Hypothesis and assumptions l inked to other researchers

|  | HYPOTHESIS 0 / ASSUMPTIONS 0 | HYPOTHESIS 1 ASSUMPTIONS 1 | RESULT | LINK TO OTHER RESEARCH |
|---|---|---|---|---|
| H1 | There is no statistically significant relationship between the gender of consumers and the use of a mobile phone while shopping in a brick-and-mortar store, the variables are independent. This means that it does not matter what the gender of the consumer is and whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store. | There is a statistically significant relationship between consumer gender and mobile phone use while shopping in a brick-and-mortar store, therefore the variables are dependent. This means that consumer gender matters as well as whether or not the consumer uses a mobile phone while shopping in a brick-and-mortar store. | We accept the alternative hypothesis H1 | Kiba-Janiak (2014) |
| H2 | There is no statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks, the variables are independent. This means that there is no relationship between how the consumers use their mobile phones and how active they are on social networks. | There is a statistically significant relationship between the way a mobile phone is used while shopping and activity on social networks, the variables are dependent. This means that there is a relationship between the way consumers use their mobile phone and their activity on social networks. | We accept the null hypothesis H0 | Taskin & Yukselen (2019)/ Deloitte (2016) |
| A1 | At least 45.7% of consumers who frequently use their mobile phone when shopping for clothes use it to contact their friends or acquaintances and ask for advice. | At least 45.7% of consumers who frequently use their mobile phone when shopping for clothes do not use it to contact their friends or acquaintances for advice. | We accept the alternative hypothesis H1 | Nasir a Kurtulus (2016) |
| A2 | At least 53% of consumers who frequently use their mobile phone when shopping for consumer electronics use it to search for product information. | At least 53% of consumers who frequently use their mobile phone to shop for consumer electronics do not use it to search for product information. | We accept the alternative hypothesis H1 | Nasir a Kurtulus (2016) |
| A3 | At least 21.4% of consumers who frequently use their mobile phone for grocery shopping use it to compare product prices. | At least 21.4% of consumers who frequently use their mobile phone for grocery shopping do not use it to compare product prices. | We accept the null hypothesis H0 | Nasir a Kurtulus (2016) |

**Source:** (Own Processing)

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## CONCLUSION

The stratified group consisted of residents of the Slovak Republic born between 1997 and 2012 inclusive, falling in terms of age under Generation Z, i.e. the decisive criterion in the selection was age. We conducted the research using the inquiry method, using an online structured questionnaire based on the Google Forms platform and 786 respondents answered the questions. The aim of the research was to determine the extent and purpose of using mobile phones by Generation Z consumers before, during and after shopping in brick-and-mortar stores.

The results of testing the first hypothesis showed a statistically significant relationship between gender and whether or not a consumer uses a mobile phone while shopping in a brick-and-mortar store. We found that more women than men use a mobile phone while shopping in a brick-and-mortar store. On the contrary, the results of testing the second hypothesis did not show a statistically significant relationship between the way of using a mobile phone during shopping and activity on social networks. However, in percentage terms, we found that 47% of respondents are active on social networks using their mobile phone while shopping in a brick-and-mortar store. The first assumption was not confirmed. Less than 45.7% of respondents used their mobile phone to contact their friends or acquaintances and ask them for advice while shopping for clothes. Likewise, the second assumption was not confirmed. According to our findings, only 37% of respondents used a mobile phone to search for product information while shopping for consumer electronics. The last, third assumption was confirmed. More than 21.4% of respondents use their mobile phone to compare product prices while buying food in a brick-and-mortar store.

We compare the results obtained in our research with the results of research carried out in the recent past. Our findings may encounter certain limits: consumers do not have smartphones, do not have access to mobile and WIFI networks or have limited access to them, consumers are not sufficiently information and digitally literate and are residents of the Slovak Republic.

- Consumers do not have smart mobile phones, i.e. they do not have a means of communication in the sense of a medium which would convey information to them using textual, visual, audio and audio-visual means of expression before and during a purchase in a retail store. Smart phones already in their basic version, without consumer intervention, have numerous applications for information, entertainment, education, or promotion.
- Consumers do not have access to mobile and WIFI networks or have limited access to them, e.g. for economic reasons or due to the management of accounts of consumer devices by parents or legal representatives who set a daily time limit for using a mobile phone.
- The level of information and digital literacy of consumers can also be a limiting factor in the use of mobile phones in the shopping process. This means that their ability to identify and search for the type of information they need through modern information and communication technologies, as well as to evaluate their usefulness and truthfulness, is limited.
- Findings and conclusions can only be generalized to the population of Generation Z in the territory of the Slovak Republic, which was not limited by the mentioned limits.

The findings of the study have practical implications for brick-and-mortar retailers who can use this information to develop targeted marketing strategies that align with the mobile phone usage patterns of Generation Z consumers. This study contributes to the development of knowledge about consumer purchasing behavior, specifically in the context of mobile phone use during brick-and-mortar shopping and offers future research directions in this area. Recommendations for further research refer to the need for a larger sample of respondents, geographically wider coverage of the study area, also a sample that would include respondents of different age categories to ensure the greatest diversity of the sample.

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