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# Multimedia content in online advertising: insight into generation Z preferences

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**Abstract** — Online advertising has undergone a significant transformation in recent years and continues to evolve rapidly. This paper contributes to the research focusing on new trends that must be followed to target customer segment. Generation Z now represents 26 % of the global population, so experts in this field should be interested in their needs and desires. This paper contributes to this field by offering three views on generation Z regarding their perception of online advertisement – their personal view, their professional opinion, and the relationship between those two views. We used an experimental setting during marketing classes with two separate questionnaires, one at the beginning of the semester and one at the end.

**Keywords** — multimedia content; online advertising; generation Z; digital marketing

## I. INTRODUCTION

Digital marketing and online advertising have evolved significantly over the past few decades due to technological advances and the increasing prevalence of the Internet. In the 1990s, the emergence of the World Wide Web paved the way for the first forms of digital marketing, including banner ads and email marketing. Over the years, advertising has evolved dramatically, and technology has played a significant role in this transformation.

As online advertising becomes an increasingly prevalent form of marketing, companies are looking for new and innovative ways to reach their target audience [1],[2],[3],[4],[5]. One such way is to involve new formats in their digital content. Along with text and images, commonly presented through more traditional media, companies increasingly incorporate multimedia, such as video and audio, into their digital media strategies [6],[7].

Online advertising refers to promoting products or services through digital channels such as websites, search engines, social media platforms, and mobile apps to reach a target audience [1],[8]. Online advertising can take many forms, including display ads, text ads, video ads, and sponsored content.

Potential benefits of multimedia usage in online advertising include increased engagement and reach, improved brand awareness, and the ability to connect with customers more personally [1],[7]. Another undeniable benefit of multimedia is

that it offers the best medium for faithfully rendering what users see, hear, and experience in the real world [9]. However, there are potential challenges, such as the cost and time required to create high-quality multimedia content and the need to stay up-to-date with the latest trends and platforms [5], [10]. In addition, the content must be helpful, focused, clear, and compelling to the target audience. Whichever type of content we choose to create does not matter; what matters is that it is beneficial and meaningful [4].

The main advantage of online advertising is that it allows companies to reach a global audience in real-time and track the success of their campaigns. It offers many benefits, including the ability to target specific demographics, track the success of campaigns, and reach the right audience in real-time.

The main goal of this paper is to reveal how generation Z (selected demographic sample) perceives different types of online advertisement. To achieve this goal, we set the following research questions:

1. What types of online advertisements attract gen Z's attention?
2. Are we able to identify any particular groups of respondents in relation to online advertising?
3. How do the preferences of these groups change if they switch roles from users to marketers?

### A. Specifics of Generation Z

This study focuses on young adults - generation Z, also known as Gen Z or iGen. This demographic cohort includes people born between 1996 and 2010. Generation Z can be described as digital natives because they have never known a world without the Internet, computers, and mobile devices [11],[12]. They were born into a social world of likes and shares, constantly connected by smartphone, tablet, or computer to online shops, payment, and banking services [13]. They have grown up with instant information and interaction with friends, relatives, and peers. This generation Z provides a clear point of view on the changes from traditional to digital media, where people use technology in their daily life [2],[13],[10].

Gen Zs are visual communicators [14] that spend significant amounts of time on social media sites and video

source platforms such as Tiktok, Instagram, Snapchat, Facebook, and YouTube, searching for engaging and entertaining content [12], [15]. New data suggests that Gen Z are more engaged on social platforms than millennials, spending more than an hour more on social media each day. [16] Generation Z appears to be a very influential community especially on the social network TikTok, where they make up 60% of users [17]. This generation is also gradually becoming very active on the LinkedIn social network, where they currently make up only 10% of active users, but are also the fastest growing demographic group [18].

Each generation has characteristics that differentiate it from the one that preceded it. Although Gen Z members look like millennials from an overall device ownership perspective, there are a few key differences [19]. According to [15], they spend far less time accessing the Internet via PCs than older groups; the vast majority of their online time is spent on mobile devices.

According to recent statistical data [19],[20],[21], Generation Z represents 26 % of the global population. Moreover, since the older part of this generation is between the ages of 20 and 25, it is already a group that is active both professionally and politically. Another reason why marketers should focus on this age group is the fact that the majority of Gen Z are not yet fully independent adults and still live with their parents and have a significant influence on how the family spends, especially on food and beverages, furniture, household items, and travel [22]. Therefore, with the shift in consumer generation, marketers must shift their marketing strategies simultaneously.

### B. *Multimedia in online advertising*

With the rapid growth of the Internet and the increasing prevalence of mobile devices, digital marketing has become a crucial aspect of any marketing strategy. As a result, companies have changed their focus from traditional advertising methods to digital platforms, taking advantage of the power of social media, search engines, and other online channels to reach their target audiences [8]. As technology continues to evolve, online advertising will evolve, too, using new tools and more attractive multimedia formats to provide digital content. The use of multimedia can help capture attention, communicate messages more effectively, and create a more memorable and engaging experience for the viewer.

The role of multimedia format content, e.g., image, video, etc., can impact user engagement behavior differently. For example, video posts encourage users to actively engage with the fan page by sharing their opinions and comments on business posts. At the same time, photo content stimulates passive user engagement through likes [7]. Video production, particularly in the B2C context, has proven to be one of the most effective content marketing techniques [5]. Generating quality content requires observing the customer and their behavior to meet their needs because high-quality content creates value for customers rather than merely promoting the company's products [2].

According to a survey [22], visual content is the most popular among all user groups. Images are one of the most

commonly used multimedia elements in online advertising, as they can quickly grab a viewer's attention and convey a message or emotion in a simple and straightforward way. Although posts with photos are the most frequently published content, short videos are growing in popularity, especially among young adults [23],[24].

The growing popularity of video formats is reflected in the expansion of formats such as Stories or Reels. Video marketing is now one of the most significant opportunities to attract consumers genuinely and authentically because it can engage consumers' emotions and address their needs [10]. Although multimedia in online advertising can be highly effective, companies need to use it strategically and in a way that aligns with their brand identity and messaging.

Social media platforms have also played a significant role in the evolution of online advertising. Platforms like Facebook, Instagram, and Twitter have become powerful advertising tools, allowing advertisers to reach highly targeted audiences with precision and accuracy [25], [26], [27]. In addition, social media platforms have introduced new ad formats [28], [29], such as Stories, Carousel ads, and shoppable posts, which have opened up new opportunities for brands to engage with their customers.

Finally, privacy concerns and new regulations, such as GDPR (General Data Protection Act) and CCPA (California Consumer Privacy Act), have forced online advertisers to become more transparent and accountable in their data collection and targeting practices [30], [31], [32], [33], [34]. As a result, advertisers increasingly rely on first-party data, such as data from their websites and apps, to target their ads, rather than third-party data collected from other sources.

## II. METHODOLOGY OF THE CASE STUDY

The methodology of the paper is quantitative, as it contains a case study based on two surveys among university students about their preferences for different types of online advertisement. The scope of the research covered the comparison of two views on these preferences. The first view focused on students' behavior as advertising consumers, and the second incorporated their view as future marketers. The whole case study preparation, handling, and analysis process are depicted in Fig. 1.

In the preparation phase, we first defined what types of advertising students would evaluate. The central point of the survey was comprehensibility. Thus, we narrowed the research into six types of ads: Text (result in a search engine), Text (PR article), Image ad, Animated image ad, Video ad, and Animated video ad. In the second step, we selected a group of students appropriate for this task. We decided to distribute the questionnaires during the marketing classes because these students could take on the role of a marketer. The third step covered the preparation of the time plan. We decided to distribute the first questionnaire at the beginning of the semester as students would not be influenced by the knowledge of appropriate methods and tools used in marketing. So, they will answer according to their natural behavior. The second questionnaire was planned at the end of the semester.

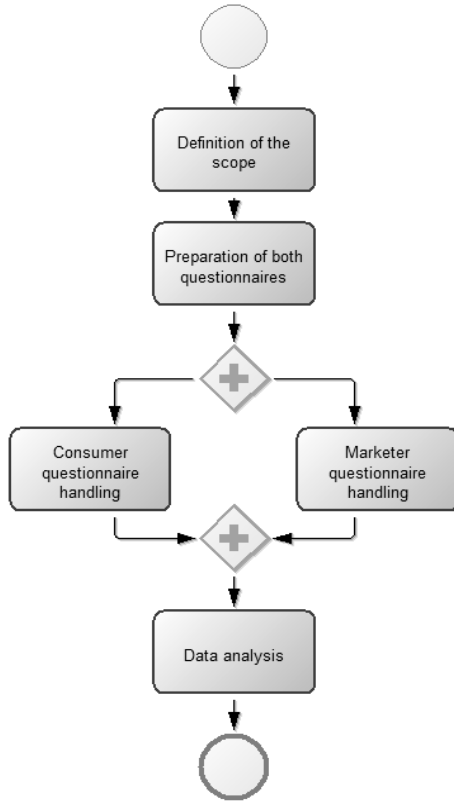


Figure 1. Depiction of the research process

The next step in the preparation phase was selecting the evaluation method. For the first questionnaire, we used a Likert scale with four values. The question was: How often do you click on these particular types of ads (never, exceptionally, sometimes, often)? For the second questionnaire, we chose the money distribution approach. Students were instructed that they have a budget of CZK 100, which they can divide into individual types of advertising. In this case, we did not consider different advertising costs. The last step was the preparation of the questionnaires in MS Forms.

The phase of handling questionnaires was divided into two parts. The first part considered introducing students to the first questionnaire, filling out this questionnaire, and sending it. In the second part, we spent more time explaining the money distribution method, but the rest of the process was the same.

The data analysis phase is required at the beginning, gathering all data and cleansing. Then, only data from students undergoing both phases are used further in the analysis (n = 237 respondents). In the next step, we had to unify metrics for both questionnaires.

In the first questionnaire, it was necessary to convert the used values of the Likert scale into numerical values representing the frequency of clicks on the given type of ad. The value "never" was logically converted to the value 0. The value "exceptionally" was evaluated as the base of the scale and, simultaneously, the lowest possible positive non-zero

value 1. The remaining two levels were always evaluated as twice the previous value, i.e., as values 2 and 4. This created an exponential scale well, characterizing the frequency of clicks corresponding to the verbal expression of the Likert scale values. The numerical value obtained by conversion from the Likert scale  $CR_{i,t}$  is the absolute click-rate for the  $i$ -th respondent and  $t$ -th type of ad. We used the sum of absolute click-rate to get the Interest  $In_t$  in a particular type of ad  $t$  as our first analysis.

$$In_t = \sum_{i=1}^{237} CR_{i,t}; t \in \{1,2, \dots, 6\} \quad (1)$$

TABLE I. LIKERT SCALE TO NUMERICAL VALUE CONVERSION

Likert scale	<i>never</i>	<i>exceptionally</i>	<i>sometimes</i>	<i>often</i>
Numerical	0	1	2	4

The second questionnaire provided information on the share of funds that a respondent in the role of a marketer would invest in the relevant type of ad. This can be understood as his/her expectation of consumers hit with this type of ad. The condition for the distribution of 100 CZK directly provides the result as a percentage share and can be easily compared with the outputs from the first questionnaire.

$$RIS_{i,t} = \frac{IS_{i,t}}{100}; i \in \{1,2, \dots, 237\}; t \in \{1,2, \dots, 6\} \quad (2)$$

In the formula,  $RIS_{i,t}$  is the relative share of the investment in the  $i$ -th respondent in the  $t$ -th type of ad,  $IS_{i,t}$  is the absolute allocated amount from the available amount of 100 CZK by the  $i$ -th respondent in the  $t$ -th type of ad. We used  $IS_{i,t}$  to see the pattern of distribution of advertising expenditures in the two settings:

1. a whole group of respondents,
2. particular groups of respondents (Opponents – click "never" or "exceptionally," Others – the rest of the group, and particular group Without preferences – used the same answer for all types of ad).

The only difference between those two analyses is that we had to normalize the amount spent by group size in comparing groups.

The last step in our research was answering the third research question about changing preferences when our respondents switch roles from users to marketers. We expected to use Pearson and Spearman correlation coefficients to answer this question. However, the data could not be used in its raw form. Instead, we had to transform absolute click-rate  $CR_{i,t}$  into relative value  $RCR_{i,t}$  representing preference among given ad types.

Suppose we understand the relevant numerical values as a given respondent's number of clicks in a specific time interval. In that case, they can be used to calculate the relative number of clicks for each of the six ad types and thereby characterize

the interest in each type of ad by a specific respondent in the role of a customer. In the exceptional case when the respondent indicated the value "never" for all types of ads, and the basis for calculating the relative value is zero, an even distribution was used as a substitute expression of interest:

$$RCR_{i,t} = \begin{cases} \frac{CR_{i,t}}{\sum_{t=1}^6 CR_{i,t}} & \text{for } \sum_{t=1}^6 CR_{i,t} > 0 \\ \frac{1}{6} & \text{for } \sum_{t=1}^6 CR_{i,t} = 0 \end{cases} ; i \in \{1,2, \dots, 237\}; t \in \{1,2, \dots, 6\} \quad (3)$$

In the formula,  $RCR_{i,t}$  is the relative click-rate of the  $i$ -th respondent for the  $t$ -th type of ad, and  $CR_{i,t}$  is the numerical value obtained by conversion from the Likert scale for the  $i$ -th respondent for the  $t$ -th type of ad. At the same time, the relative click rate expresses the relative interest in the respective type of ad in the context of the six mentioned ad types. The preparation of  $RCR_{i,t}$  allowed us to calculate the correlation between  $RIS_{i,t}$  and  $RCR_{i,t}$ .

### III. RESULTS

The first analysis considered the interest in different types of ads based on respondents' behavior – frequency of clicking on the specified type of ad. Results are presented in figure 2. Although the Image ad category got the highest rank, the differences among particular types are not expressive. For example, only the Animated video ad scored distinctly lower.

The first analysis revealed respondents' preference for image ads in both variants and, surprisingly, textual ads in the form of PR articles. Both types of video ads scored lower, although surveys say [35] that companies are investing more and more money in this type of advertising. Many reasons can be hiding behind this result; however, currently, we cannot identify them. Future research may focus on an in-depth study based on qualitative research methods to better understand the gen Z group.

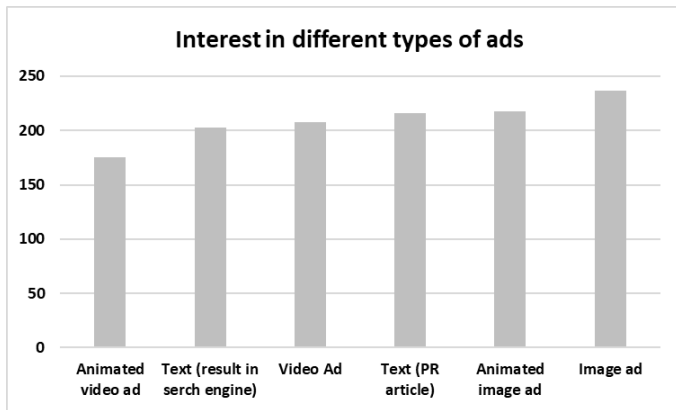


Figure 2. Comparison of clicking behavior of respondents

The second analysis searched for the answer if there are some identifiable groups among the respondents concerning their advertising preferences (see table 2). At first, we looked for those respondents who do not like ads generally and

marked them as Opponents (answers for all types of ads were "never" or "exceptionally"). We found 88 persons, which represents 37 % of respondents. The group of Others comprised respondents who at least once selected the option "sometimes" or "often." We also identified a particular group with no preferences for any type of ad. In this case, respondents used the same answer for all types of ads (34). Most of them (25) answered that they do not click on any ads at all. Seven clicks "exceptionally" (both groups are also part of group Opponents). One selected "sometimes" and one "often" for all types.

TABLE II. GROUPS IN RELATION TO THEIR AD PREFERENCES

Group name	Total	Opponents	Other	Without preferences
Size of the group	237	88	149	34

The next part of the research exploited data from the second questionnaire with the aim of seeing what type of ad will be the most popular from the marketer's view. We also wanted to know if our respondents would be biased toward the type of ad they do not like. They attended a whole semester of marketing lectures, learning new trends, how people react to different ads, etc. Therefore, we asked: "Will our respondents prefer ads they like or those they learned are the most effective these days." The result clearly shows that respondents distributed money according to the knowledge they gathered in marketing classes, even if the decision was inconsistent with their preferences (see figure 3).

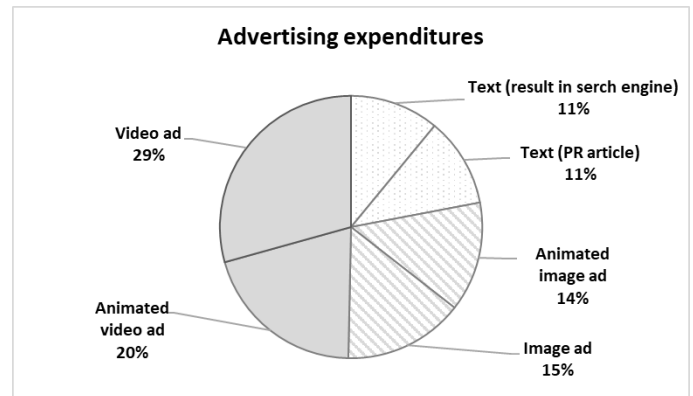


Figure 3. Distribution of money – total sample

The following figure shows the answer to the same question, but groups separate the results we had identified when processing the first questionnaire. The reason was that we wanted to see if there was a different pattern of behavior. Figure 4 shows that we can identify only slight differences among groups, but the ranking of ad types is the same. Advertising expenditures were normalized by the size of the group.

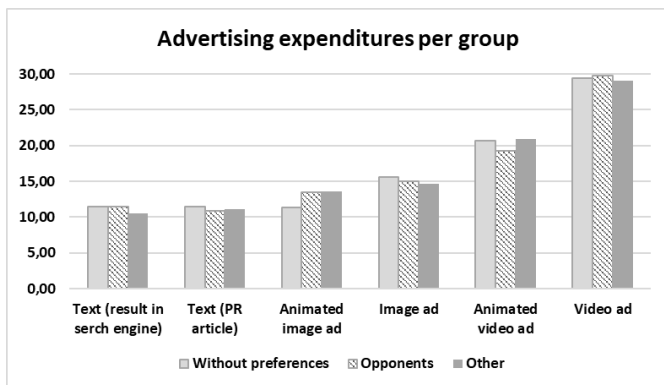


Figure 4. Distribution of money – preference groups

The last part of the research considered only the group of Others as they revealed some preferences for a particular type of ad. In this part, we studied the correlation between respondents' personal preference and money distribution using Pearson and Spearman coefficients (see table 3).

In three types of ads, we confirmed significant relationships between results – Text results in the search engine, Animated image ads, and Animated video ads. The lowest level of correlation was found for Text in the form of a PR article. Although respondents often clicked on this type of ad, they did not assign much money to it. The opposite situation occurred in the case of Video ads. Respondents did not click on this type of ad, but they learned that it is currently one of the most popular types of ad, so they assigned a lot of money to it. Therefore we can conclude that they are not biased in their decision-making.

TABLE III. CORRELATION BETWEEN AD TYPES PREFERRED BY CONSUMERS AND MARKETERS

Ad type	Pearson coefficient		Spearman coefficient	
	r	p-value	r	p-value
<b>Text (result in a search engine)</b>	<b>0.2016</b>	<b>0.014</b>	<b>0.2030</b>	<b>0.013</b>
Text (PR article)	0.0860	0.297	0.0490	0.553
Image ad	0.1512	0.066	0.1565	0.056
<b>Animated image ad</b>	<b>0.2152</b>	<b>0.008</b>	<b>0.1849</b>	<b>0.024</b>
Video ad	0.1086	0.187	0.1591	0.052
<b>Animated video ad</b>	<b>0.1657</b>	<b>0.043</b>	<b>0.1675</b>	<b>0.041</b>

#### IV. CONCLUSION

This paper introduced three different views on generation Z regarding online advertisement – their personal view, their professional opinion, and the relationship between those two views. We found out that our respondents prefer online ads in the form of images, either static or animated. As Gen Z continues to dominate consumer markets, marketers and advertisers must leverage the power of visual storytelling and

interactivity to create compelling image-based ads that resonate with this generation. By embracing this preference and incorporating it into their campaigns, businesses can effectively engage with Gen Z and capture their attention in an increasingly crowded digital landscape.

We also revealed that they are able to suppress their personal preferences if they were supposed to act as marketers. In this situation, they behave professionally and are not biased. One possible explanation for this behavior is the recognition of the importance of targeted advertising in reaching specific audiences. Gen Z, being digitally native and having grown up surrounded by ads, may understand the significance of tailored marketing campaigns in connecting with consumers. They realize that despite their personal distaste for ads, effective marketing strategies play a crucial role in promoting products and services and driving business growth. They may have witnessed the impact of well-executed campaigns and recognize the power of marketing in influencing consumer behavior.

In conclusion, online advertising has come a long way in the past few years, and it will continue to evolve as new technologies and formats emerge and consumer behavior changes. Advertisers who understand the young generation and adapt their strategies accordingly will be well-positioned to succeed in the ever-changing world of online advertising.

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