

Impact of Facebook, TikTok and Instagram advertising on the Arlington VA community

Impacto de la publicidad en Facebook, TikTok e Instagram en la comunidad de Arlington VA

Impacto da publicidade no Facebook, TikTok e Instagram na comunidade de Arlington VA

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Abstract

This paper is a product of the research about "Advertisement impact in Facebook, TikTok and Instagram in Arlington Virginia community" developed at the Francisco Jose de Caldas University in 2022.

Introduction: Over time, generations have been changing and developing new consumer trends. Similarly, companies have been evolving to be able to adapt to the different trends to reach the target audience using diverse methods of advertising.

Method: This paper makes use of databases such as Scopus, Google Scholar, and Index-K as sources of information to guide the research of social media use. Using statistics and articles, we determine the main aspects that guide behavior and the use of the different social media platforms in different age groups.

Results: This Paper shows that, depending on the age group, the use of social media is different.

Conclusions: Younger users prefer platforms where they can share videos or images. As people grow, they are more attracted to platforms like Facebook where they can find social interaction and information and share different types of content.

Limitation: This paper is focused on people that live in Arlington a small city in the state of Virginia. The information found can be a basis for analyzing users' behaviors on different platforms.

Keywords: Social networks, advertising, Facebook, Instagram, TikTok, trends

Resumen

Este artículo es producto de la investigación sobre "Impacto de la publicidad en Facebook, TikTok e Instagram en la comunidad de Arlington Virginia" desarrollada en la Universidad Francisco José de Caldas en el año 2022.

Introducción: Con el paso del tiempo, las generaciones han ido cambiando y desarrollando nuevas tendencias de consumo. Del mismo modo, las empresas han ido evolucionando para poder adaptarse a las diferentes tendencias para llegar al público objetivo utilizando diversas formas de publicidad.

Método: este artículo hace uso de bases de datos como Scopus, Google Scholar, Index-K como fuentes de información para guiar la investigación del uso de las redes sociales. Mediante estadísticas y artículos determinamos los principales aspectos que guían el comportamiento y el uso de las diferentes plataformas de redes sociales en los distintos grupos de edad.

Resultados: Este trabajo muestra que dependiendo del grupo de edad el uso de las redes sociales es diferente.

Conclusiones: Los usuarios más jóvenes prefieren las plataformas donde pueden compartir videos o imágenes. A medida que las personas crecen, las personas se sienten más atraídas por plataformas como Facebook, donde pueden encontrar interacción social, información y pueden compartir diferentes tipos de contenido.

Limitación: Este artículo está enfocado a personas que viven en Arlington, una pequeña ciudad en el estado de Virginia. La información encontrada puede ser una base para analizar el comportamiento de los usuarios en diferentes plataformas.

Palabras clave: Redes sociales, publicidad, Facebook, Instagram, TikTok, tendencias.

Resumo

Este artigo é produto da pesquisa "Impacto da publicidade no Facebook, TikTok e Instagram na comunidade de Arlington Virgínia" desenvolvida na Universidade Francisco José de Caldas em 2022.

Introdução: Ao longo do tempo, as gerações foram mudando e desenvolvendo novas tendências de consumo. Da mesma forma, as empresas evoluíram para conseguir se adaptar às diferentes tendências para atingir o público-alvo por meio de várias formas de publicidade.

Método: este artigo utiliza bases de dados como Scopus, Google Scholar e Index-K como fontes de informação para orientar pesquisas sobre o uso de redes sociais. Através de estatísticas e artigos, determinamos os principais aspectos que orientam o comportamento e o uso das diferentes plataformas de mídia social nas diferentes faixas etárias.

Resultados: Este trabalho mostra que dependendo da faixa etária, o uso das redes sociais é diferente.

Conclusões: Os usuários mais jovens preferem plataformas onde possam compartilhar vídeos ou imagens. À medida que as pessoas envelhecem, as pessoas são mais atraídas para plataformas como o Facebook, onde podem encontrar interação social, informações e compartilhar diferentes tipos de conteúdo.

Limitação: Este artigo é voltado para pessoas que moram em Arlington, uma pequena cidade no estado da Virgínia. As informações encontradas podem servir de base para a análise do comportamento do usuário em diferentes plataformas.

Palavras-chave: Redes sociais, publicidade, Facebook, Instagram, TikTok, tendências.

1. INTRODUCTION

Successive generations bring new changes and result in new consumer trends. In the same way, companies have been evolving to be able to meet new consumer needs and reach their target audiences. The role of advertising has been of utmost importance to be able to show the public the products and services available; therefore, different media strategies have been developed to satisfy these new trends. Currently, due to the variety and ease offered by the internet, digital platforms have become one of the most important forms of marketing around the world, reaching thousands of people in a matter of seconds and allowing industries to have better access and contact with their customers. However, the use of these platforms can become either a tool or a hindrance if not used properly. For this reason, it is important to clarify the environment and objectives that are wanted when launching a product or service to the market.

Taking this into account, different population groups react differently to what they consume; the identification of such behavior serves as the basis for market analysis on which to build campaigns that allow companies to effectively achieve their desired objectives.

Based on this, this article, through descriptive research, aims to serve as a guide on how different generations consume advertising on social media and what are the aspects of the environment in which the use of these platforms is developed. Additionally, this academic work is reflected in areas such as marketing and electronic commerce, since the interaction in the networks generates an impact on how consumers acquire or search for product information.

1.1 Literature review or research background

Social networks and their interaction with users have allowed companies to exploit the networks and get closer to their users. However, the use of social networks has both positive and negative consequences and impacts on society, the positive aspects occur in communication with other users, access to information, and the possibility of expressing opinions and feelings publicly and privately, through different platforms [1]. For this reason, the advertising evolution has occurred in parallel with information technology. Because of this, from the origin of social networks, the objective has been to persuade potential customers to consume a product or service [2].

Initially, the advertisements were focused on the product, where the characteristics of the product were shown based on textual content, for which pop-ups, banners, skyscrapers, or interstitials were used, multiplying the possibilities of accessing different types of users.

The primary tool was the use of banners because they captured the attention of users [2] and allowed personalized advertising to what analysts called the “democratization of advertising.” From there, advertisers focused on advertising to different types of audiences, but with lower user interaction.

Subsequently, with the arrival of Web 2.0 and 3.0, the personalization of content was facilitated and gave way to one-to-one advertising, creating a new brand-product-consumer relationship, because users began to generate personal emotions and experiences with marketing due to the creation of official brand profiles, in an attempt to reach customers at a low cost. These profiles entertain, through original advertising content and advergames, ensuring users interact with the brand product, generating active participation, and inexorably generating a positive perception of the advertiser. For this reason, companies focus on content personalization that is created by all the interactions that the user voluntarily generates when using social media. This interaction allows them to eliminate the barriers between companies and consumers and increase engagement. This engagement is defined as the level of interaction, intimacy, and influence that a person has with a brand over time. This influence allows them to create a dynamic relationship and connect with the public [3].

Additionally, communication with the consumer has become very important, since users feel listened to, cared for, and propagandized as they can contact the brand quickly, allowing them to give their opinion; consumers interact and learn about new products to the point where users publish the products on their personal profiles [4].

However, advertising has gone hand-in-hand with the growth of networks to reach more audiences; so, throughout history, networks have implemented services

for user entertainment that have also been used for advertising. But the advertisement is characterized by content personalization because it has been used as a helpful strategy and tool to incorporate recognizable aspects like behavior or preferences in the content information [4].

For example, in October 2019, TikTok became the most downloaded application by users, more so than networks such as Facebook and Instagram. This allowed the industry to see great potential in the application and quickly began to be used to advertise products. What made TikTok different from other networks is that it judges the way users consume videos, their comments, likes, follows, or shared videos, to keep suggesting similar content and build loyalty [5].

In the case of Facebook, earning 86 billion dollars in 2020 and having more than 2.7 billion monthly users worldwide, Facebook is the largest social networking site in the world [6]. In the same way, over the last ten years from 2011 to 2021, the number of advertising agencies has skyrocketed and has increased by almost 74% in the US, with 1449 agencies in 2011 and 5585 in 2021. This was also reflected in the total amount spent on Facebook advertising in 2015, which was only \$156 billion compared to 2019's \$299 billion, showing immense growth over the years [7].

2. MATERIALS AND METHODS

In order to develop the project, it is intended to use a descriptive research methodology, which is the initial and preparatory process of an investigation, since it helps identify the behavior and characteristics of an observed phenomenon. With the development of the phenomenon under study, it becomes a complex and very broad system that allows it to be focused, ordered, characterized, and classified to obtain a precise description of the phenomenon [8]. The investigation will be developed in the following stages.

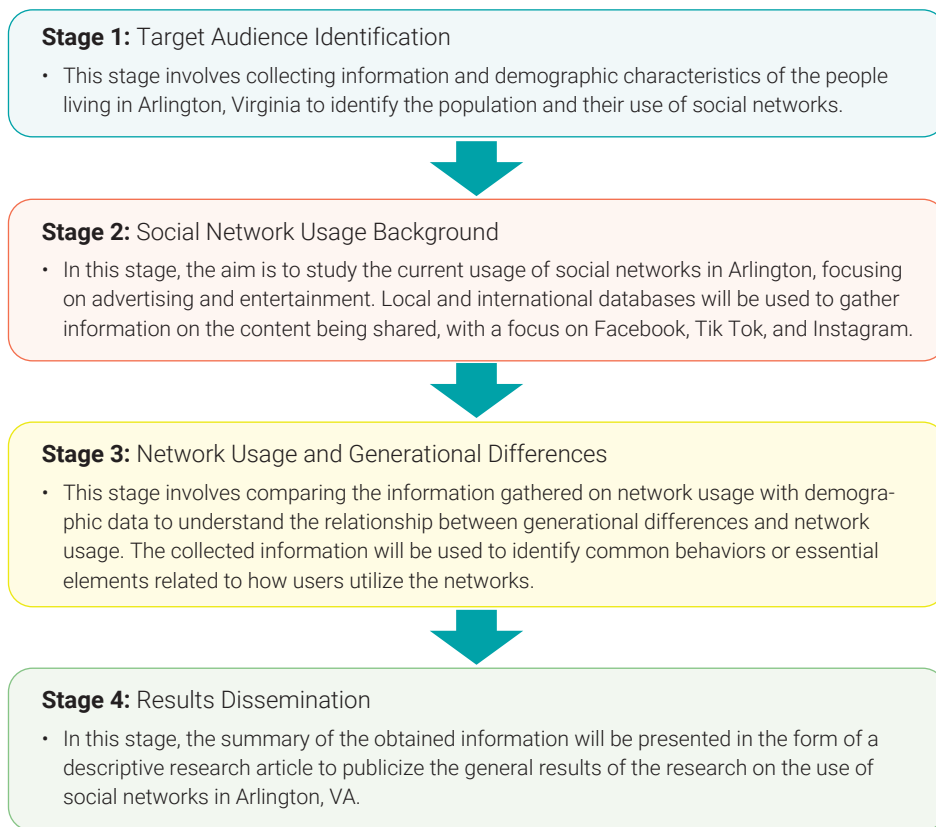


Figure 1. Process Stages

Source: own work

3. RESULTS

3.1. Background and evolution of the use of social networks Facebook, Instagram, and TikTok in the advertising field.

3.1.1. Facebook.

Founded in 2004 by Mark Zuckerberg, it is currently one of the most robust social networks that exists. It allows you to create a profile that contains personal information and, from there, you can publish texts, photos, and videos. Said information is shared publicly or privately between users, either in their profile or by participating in groups of common interest. Additionally, users can also communicate directly with each other through a chat called Facebook Messenger. All these attributes have allowed

Facebook to become a platform with more than 1.3 billion active users. Facebook has the largest number of users and markets for e-commerce.

Promoting a brand in this social network can be done in different ways as it has various tools that allow communication between a company and the end user; for example, it allows : the creation of a personalized graphical interface within Facebook with the information and corporate image of the company, to create groups of users with preferences on products and services in common, for the creation of advertising campaigns and use of the Facebook Market platform that is designed to market products and services within Facebook. This platform has a great scope for marketing because most users who access the platform already intend to purchase a service or product and there is no cost for using the platform. Additionally, it allows you to publish the product announcement in different Facebook groups and thus reach a more specific group. Another advantage of Facebook Market is the security for transactions, because Facebook carries out a review of the products to be sold and allows users to report both sellers and buyers in case of fraud.

In recent days, the company Facebook changed its name to Meta, since according to its creator, the company's new focus will be on the metaverse and virtual reality, seeking for its users to be able to interact in a virtual world without physical or economic limitations through avatars that carry out activities and interact in said environment. To do this, Meta acquired the virtual reality company Oculus, which would give it a new, bifocal business vision: "application families" and "future platforms" [9]. The development of the metaverse gives new challenges to digital advertising because companies must adapt to these new virtual shopping experiences. An example of this is NFTs (non-fungible tokens). An NFT is a means that allows you to trade any item in a virtual environment by making purchases through cryptocurrencies. All kinds of digital items can be an NFT, from a tweet, to a piece of art, an image, or a video. An example of the use of NFTs are doing purchases in virtual worlds such as Roblox, where companies created worlds with specific themes that allow them to purchase exclusive products in said worlds. The company Absolut has launched Absolut.Land, where users use NFTs to purchase virtual fashion items and can virtually attend the Coachella festival by finding a special token [10].

3.1.2. Instagram

Created in 2010 by Kevin Systrom and Mike Krieger, this is a platform designed to share photos and videos and was later bought for 1 billion dollars by Facebook (Meta). As of 2015, advertising could be carried out from the Facebook platform where users can create or consume content [2] such as:

- Images: They are the simplest ad and appear on the timeline or Instagram feed.
- Videos: These are video posts with a maximum of 60 seconds and appear on the timeline or Instagram feed.
- Carousels: They allow the user to show a maximum of 10 photos or videos in the same ad and it works the same as images and videos.
- Stories: The app allows advertising through photos and videos that last 15 seconds and are found in the Stories.
- The collection: This is a very complete advertisement; it allows the user to observe assorted products of a company.
- Reels: These were designed to create fun videos, but it allows anyone to become a content creator.
- Instagram Market: This is used to increase brand awareness and show products through images published in said section.

3.1.3. *TikTok*

This is a Chinese social network that allows users to create content through videos of 15 to 60 seconds in length with music, filters, and other elements [11]. This feature has allowed it to be an attractive platform for users and become one of the fastest-growing networks, reaching more than 1.29 billion users. TikTok, being focused on videos, allows users to use the app at any time and makes it a highly propagated network.

One of its latest innovations is focused on a project that it will launch in Europe to market urban clothing through the application, making use of the strategy implemented by Douyin (a social network like TikTok for users in China) and its goal is to generate income of more than US\$185 billion in e-commerce annually. With this innovation, TikTok intends to increase the flow of users in the social network [12].

3.2. Social networks today (impact, future, and current potential of networks in terms of the number of users and growth of platforms)

Digital advertising has become an essential element of marketing thanks to the growth of information technology (ICT) that allows consumers to be in an “always on” state [13], in which social networks have allowed communication with a wide audience that ranges from areas such as journalism, politics, marketing or even entertainment [14]. The increase over the years in the use of networks has promoted the study of the

use and influence of networks, whether in terms of age, status, income, or behavioral tendencies.

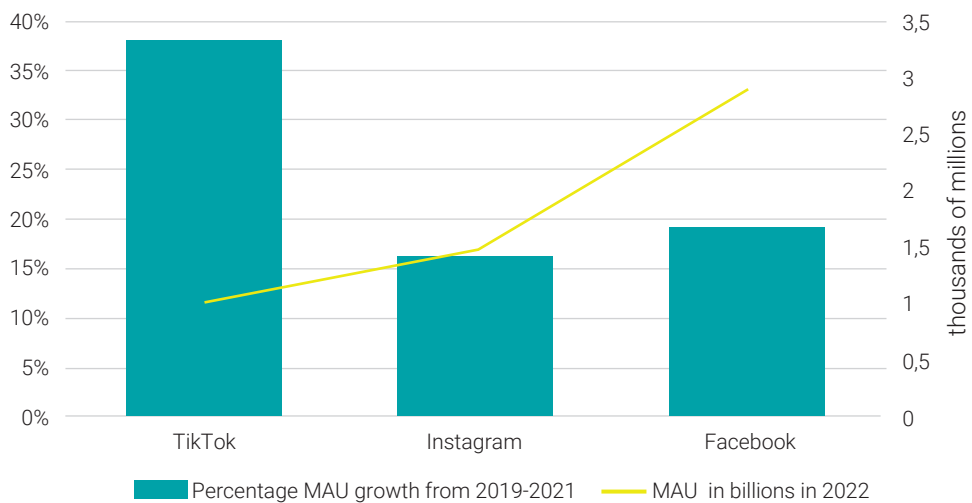


Figure 2. Monthly active users (MAU) increase in the different social networks 2019-2022
Source: own work

This graph shows the percentage growth in the use of different social networks worldwide from 2019-2021 as opposed to the number of average users in billions who used social networks in 2022. As can be seen, the TikTok social network has had the highest growth in monthly users in recent years with 38%, however, the number of these users still does not exceed the use of larger platforms such as Facebook. An interesting case occurs in the Instagram social network, which obtained the lowest growth in monthly users in recent years and has several users, like the TikTok social network. The importance lies in the fact that these two social networks have similar formats, but in recent years, users have noticeably increased their use of TikTok compared to Instagram. In the case of Facebook, it is the largest social network and has an average growth of 20%.

A study conducted by the University of Hradec Kralove, located in the north of Sweden, shows that in the United States, people with higher incomes and higher education make more use of social networks. In the same way, it also shows that as age increases, the use of social networks decreases [15].

However, in terms of advertising, the behavior and impact can vary. Speaking of millennials, in many cases advertising is perceived as invasive and the expected impact on this generation is not achieved [16].

Spending on advertising in the United States during 2020 was 249,844 million dollars and it is estimated that by 2022 it will grow to above 319,000 million, approximately 27% increase [17]. This is due to the greatly accelerated growth of marketing caused by the COVID-19 outbreak, where blockades and restrictions were presented that meant that people could not interact physically; this triggered the increase in the use of social networks to obtain entertainment and have social interaction [13]. This situation implied a drastic decrease in the consumption of goods and services in stores or physical establishments, forcing companies to increase, improve and implement online platforms to keep in touch with their clients, generating security guarantees by not having to leave their homes [18].

Influencer marketing has generated a great impact on user consumption. This is considered relational marketing in which the brand's message is transmitted to followers through consumer-influencer, influencer-brand, and brand-consumer relationships. To do this, a previous relationship of trust must already be built by the influencer and his followers.

Studies affirm that approximately 92% of social network users trust influencers more than traditional digital advertising ads [13].

3.2.1. Facebook Today

Facebook has been known for its great history worldwide. It is estimated that 2.91 billion people use the application worldwide every month; as of January 2022, the most used social network [19]. In 2021, a stage of accelerated growth in a brief period allowed the company to reach revenues of 33,671 million dollars in the last quarter of the year [20]. However, it is interesting that for the first quarter of the year 2022, Facebook's revenues decreased significantly to 27,908 million dollars, where it can be observed that it did not manage to exceed its goal about the same period in the year 2021. This may be because the world began a real reactivation of activities in 2022 and people returned to buy and acquire services personally.

This social network, unlike the others, has a more notable gap in the gender of its users than the other applications, since 56.6% of its users are men and 43.4% of its users are women [21].

3.2.2. Instagram Today

Instagram is a social network that is attractive to consumers of all genders around the world. This platform has such great growth that in 2023 it is estimated it will have

1,180.5 million users [22]. Currently, the affinity of the application for men and women is very similar, where 49.3% of its users are women and 50.7% of users are men [23]. In terms of the age of users, 31.7% are between 25-34 years old; similarly, 30.2% of users are 18-24 years old and only 8.9% of users are between 13-17 years. An interesting change in the use of Instagram is that until the age of 34, the use of Instagram is led by men, and after the age of 34 most users are women [24]. The difference between the percentages of men and women in each age range is extremely small but as mentioned most users on the platform are women.

3.2.3. *TikTok Today*

TikTok is a fast-growing and popular social network because it represents a new social network format. This network has around 1 billion monthly users as of January 2022 [25]. This makes it the sixth most used social network around the world. Additionally, it is considered one of the most valued brands in 2022. TikTok has a brand value of 58.98 billion dollars [26] surpassing companies like Disney or Shell.

4. Characterization of the use of platforms for advertising in the different generations.

Adverts are a tool that allow us to connect the customer with the product/service that the company offers since users currently use social networks as an informative tool [27]. The customer's response may vary depending on the content and objective of the advertising [28] since the efficiency and effectiveness of the process depends on how clients perceive and formulate their attitudes in response to the stimuli of what they observe [27].

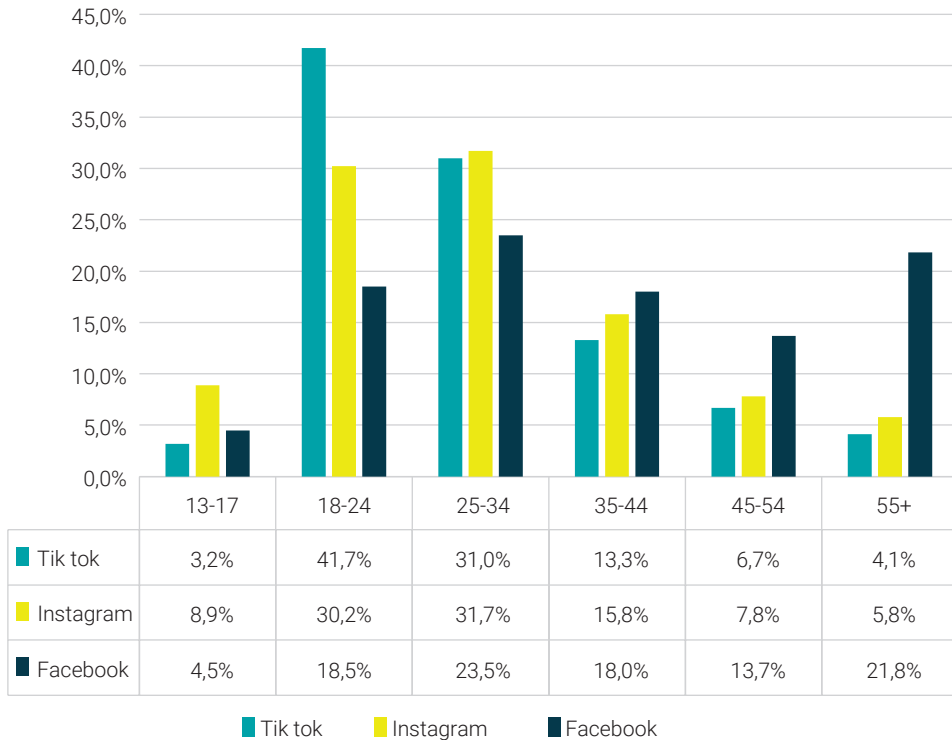


Figure 2. Demographic statistics of social networks by age group in the world
 Source: own work

When analyzing the generational difference, certain trends in the use of networks can be noted. As mentioned above, TikTok is more focused on the young audience, having its main audience among users aged 18-24, but in the case of Instagram, its audience is evenly distributed between 18-34 years old. What is surprising is that Facebook’s main audience is between 25-34 and over 55 years. This shows that Facebook is focused on a more adult audience, and this may be due to the age or the purpose of the social network, which is not exactly sharing images but communication in general. Social networks like Instagram and TikTok are more focused on a younger audience that is attracted by current and changing images and trends which can be spread quickly.

In general, the adverts allow for customer interactions in a unique way, and because they are fast and in real-time, users are updated regarding trends and their environment, through campaigns for new products/services or special seasonal releases, for example: Christmas, sporting events, or other holidays when consumption is at its highest. When customers enter a company profile, they receive entertainment and brand recognition. Social networks allow the customers to search for specific

information when browsing the networks through hashtags or direct searches creating direct user communication. Additionally, the use of stories as tools allows companies to create an exchange through questionnaires or reactions at the same time as generating entertainment for its clients or also serving as a means for the community to share that information in their profiles and reach more people. This can be done through user-friendly content or through incentives such as bonuses or discounts for sharing the post [29].

Psychological studies affirm that the duration, frequency, exposure to ads, ease of reading, and order, create an emotional response within individuals [28]. Additionally, a publication being very descriptive can generate sensations such as touch, smell, or taste. By generating these sensations, the client is attracted and therefore considers and understands the message more easily [29]. The result of this is that users are willing not only to consume but also to share the information, generating voice-to-voice effects that are effective for the growth of the brand since they have more reach in the electronic world than in the traditional [27]. In this way, users are persuaded to purchase products and services without necessarily being aware that they were persuaded and create connection and loyalty with the brand in such a way that price is not the main factor, and they adopt repurchase behaviors [30]. This relationship between the company and the customer is called relational marketing and is responsible for generating loyalty in previously indifferent consumers. In the case of Facebook, companies use strategies such as talking to company representatives, receiving information, and subsequently trusting the brand [31].

Content according to its source is divided into two forms, user-generated content (UGC) and brand-created content (BCC). Both types of content are equally important because users are exposed to them randomly and simultaneously. However, some studies determine that users believe more in UGC content, which is why a greater number of studies have been carried out on this type [32]. Regarding the effectiveness of these media, the UGC information influences users in an informative and persuasive way, but the BCC influences only in a persuasive way; the persuasive effect of the UGC is 22 times greater than that of the brand and generates a greater impact when it comes to driving sales [33].

The dynamics of social networks allow for the participation of different actors and have evolved in such a way that consumers now also participate in the promotion of the product. Consumers can persuade or influence other consumers to strengthen their favorable perception of a product or service. The result of this promotion is that the final consumer receives an official promotion from the brand, as well as a promotion from other consumers.

The information about this can be managed by a new member of a certain community or members with specific characteristics. This technique is known as influencer marketing. Promotion in this type of marketing consists of creating content that seems interesting and appealing to the audience, either through stories, music, or attractive content that when consumed by your audience generates positive feelings in users and evokes happiness and enthusiasm [29]. The use of specialized algorithms based on the current consumption of users is a tool that supports influencer marketing since these algorithms organize interests and keep users in a pleasant environment that allows interaction with users and like-minded people. This results in the exclusion of more diverse content that challenges opinions and generates restricted information since users tend to share, read and acquire content related to their tastes, limiting access to the diversity of sources. The size of the networks enables the discovery of new sources that can offer diverse information. However, due to user interactions, the information may be influenced by the user's network and connections [34]. Additionally, user decisions are also affected by external elements such as fake news. Disinformation affects brands because it generates doubts and confusion in users regarding prior knowledge about companies. Thanks to the magnitude of networks, false news spreads quickly and has an expansive behavior, resulting in users basing their decisions on the news. This is the case for companies like Pepsi and New Balance which face boycotts due to misinformation on social media [30].

People share information for distinct reasons. The first is for personal motivation, since users want to have the social label of being an expert on a subject. The second motivation is social; in this, the users are characterized because they share information to relate to their community and be part of a group. The third reason is altruism, since information is shared to help others. Online users use all this to spread information that manages to manipulate the consumer about a product or a brand that, being highly publicized, generates legitimacy.

4.1. Consumption preferences of young adult users

Social networks are popular among young people because they have evolved over the years to become not only a means of communication but also a platform for self-expression, where individuals can create or promote their identity. That is why it is important to know the difference between young and adult relationships with social networks. The expressions in the networks result in interactions that change rapidly, creating intrapersonal and interpersonal experiences that can be both positive and negative, generating virtual feedback that can be anonymous or public. Another

important aspect of the relationship between social networks with young people is the thin line between public and confidential information and how this can put users at risk. All this changing and massive information can have profound consequences on adolescents because they are in a stage of criteria and personality construction, since it exposes young people to dangerous behaviors such as sexting, cyberbullying, and grooming, or it can also generate addictive behaviors. However, social networks are not entirely negative for young people. The internet has been shown to stimulate various brain regions and promote perceptual learning and increased working memory. This can lead to faster decision-making and greater development of the frontal cortex of the brain. Additionally, when the correct use of social networks is made, feelings of competition and relationships are generated [35]. All these skills and deficiencies are used by the industry to bring advertising to young people since due to their ability to reason, companies develop new advertising formats so that young users do not directly recognize advertising. To do this, advertising is mixed with another type of content that entertain users since factors such as the affinity that users have towards the content distract the user and facilitate the work of advertising; however, factors such as the higher age of the users may negatively affect advertising due to the increase in advertising literacy, making it easier to identify advertising content [36].

4.1.1. Trends in the use of social networks in young adults

The increase in the use of social networks has been remarkable. TikTok, which is a relatively new social network, is very popular among young people. The application allows users to begin creating content from the age of 12, but 17.7% of users in the United States are between 10-17 years old [37]. Young people exposed to adverts had more positive responses and greater recall by users. Young people are more vulnerable to marketing strategies because advertising literacy skills do not develop until they are 12 years old, and from this age onwards, as age increases, users are less susceptible to the effects of advertising. Influencer advertising is also negatively affected as age increases [28].

In 2021, TikTok was the preferred social network for Generation Z, which increased by 26% compared to the previous year [36]. In the case of Instagram, 8.9% of Instagram users are between 13 and 17 years old [38].

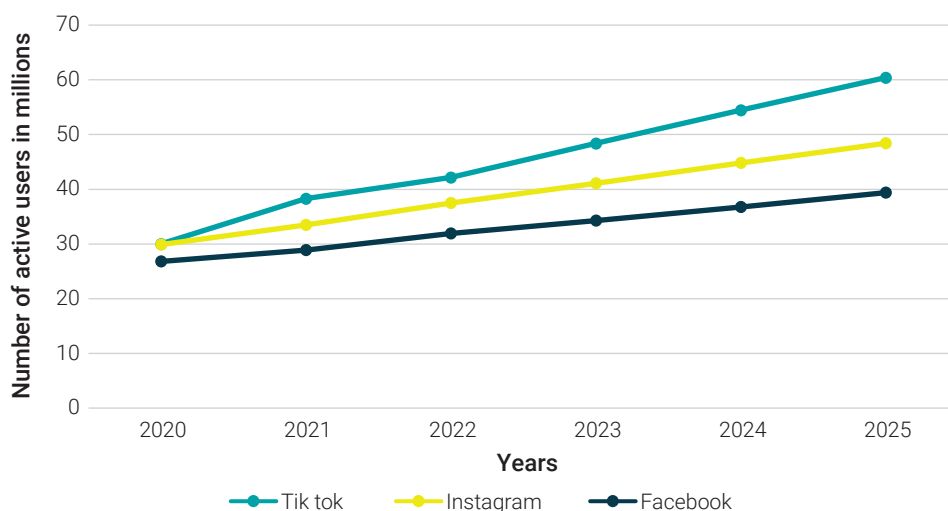


Figure 3. Number of young adult users (generation Z) in social networks from 2020-2025
Source: own work

In this graph we can see the trend that the platforms will have in the next years. This forecast was made by the linear method based on the data from 2020 to 2022. In the specific case of the United States, the use of social networks by the younger generation corroborates the trend that has marked TikTok as the preferred social network for the young public, followed by Instagram. Facebook has proven to have an audience of all ages, which is why it has become the largest and most robust social network; however, Facebook is the least preferred social network by young audiences and, as can be seen in the graph, the projection of behavior based on previous years shows that this is going to continue for the next few years. An interesting fact is that, according to the data, by the year 2025 the social networks Instagram and TikTok will have a similar increasing behavior related to users. This could indicate that the growth of networks focused on audio and visual content will have similar behaviors as a result of the increasing age of Generation Z and the development of new platforms and technology will impact user preferences.

4.2. Consumption preferences of adult users

4.2.1. Qualitative and quantitative trends related to the use of social networks in adults.

The millennial generation is characterized by being the first generation with high technology, implementing more use of digital media than of traditional media, this caused

companies to face a more connected, informed, and demanding population [31]. Understanding the generational change allows us to understand the phenomenon of social networks, where the millennials changed their ideology and unusually value the UGC and BCC. When the user receives information from another user, this is deemed reliable and motivates the individual to acquire the product, but in the case of companies, if it is someone from the brand, credibility depends on the level of experience. This means that this generation values information and advertising in different ways depending on the source [32]. In the case of adults who use TikTok, it is estimated that 61.8% of its users are between 18 and 34 years old, making them the largest demographic using the app [37].

On the Instagram platform, social media has a marked tendency of influencing users' diets and eating habits. This is because it is a social network where many of the users share their food preferences with their followers. Therefore, it is considered that this type of advertising can change the choices of users regarding food [28].

Self-regulation of users' thoughts and behaviors is a critical cognitive skill during ad exposure [28]. As previously mentioned, the user's maturity determines what is true and false within an advertisement, since this generation has better observational skills which allow them to recognize the credibility of the sources and content of the advertising they consume [32].

5. Arlington VA Social Media Consumption Preferences and Trends.

5.1. Demographic information Arlington VA.

Arlington is a city (urban county) located in Northern Virginia directly across the Potomac River from Washington DC. It is surrounded by Fairfax County and Falls Church to the southwest, the city of Alexandria to the southeast, and Washington, DC, to the northeast directly across the Potomac River, which forms the northern border of the county. It covers an area of 67.7 km² and is the smallest self-governing county in the United States.

5.1.1. Population

In 2022, Arlington has a total population of 235,500 people, with 53% of them living in planning corridors and making up 22% of the city area. The remaining 78%

corresponds to public areas, government properties, commercial areas, and low-population areas.

In terms of population distribution, the majority is between the ages of 20 and 54, which is reflected in their notable educational performance and high index of households consisting of 1 or 2 people.

5.1.2. Education and employment

As of 2022, an estimated 227,200 people are actively employed in Arlington, with only 4,800 of them being self-employed. However, only 47,610 workers both reside and work within the city. Given its small size, most of Arlington's population works in the DMV (District of Columbia, Maryland, and Virginia) region. Most jobs require the use of offices, which is reflected in the fact that the work office area in Arlington is larger than the center of cities such as Los Angeles, Denver, Atlanta, or the economic districts of Dallas and Seattle.

Regarding education, Arlington is one of the nation's most educated cities, which is reflected in the fact that 76% of residents have a Graduate or Professional Degree, which is one of the highest rates in the country. Arlington's population has access to universities such as DeVry University, George Mason University, George Washington University, Marymount University, Strayer University, University of Management and Technology, University of Virginia, and Virginia Tech, for this reason, this city has high rates of education. [39]

5.2. Social Media Consumption Preferences and Trends

By January 2022, the United States had 307.2 million active Internet users and the number of users on social networks was 270.1 million. Meaning that 87.92% of active Internet users are active on social networks [40]. Analyzing the total number of users within the country we found that 81.25% of the total population uses social networks. The USA has the third highest number of users after China and India.

By January 2022, TikTok had a 50.3% penetration in the United States. This means that there are approximately 131 million users in the country. Although it is not the country with the highest number of users, it has great penetration considering that it is a relatively new platform [41]. In terms of age, the statistics on this application show a different trend where 32.9% of its users are between 10-19 years old and 29.5% are between 20-29 years old [37]. This shows the clear trend of having a younger audience than the other social networks.

In the case of Instagram, the number of users worldwide is 1,130.2 million. [42] of which the United States has 159.75 million, this being 14.14% of the total [43]. In terms of gender, 55% of the total users in the country are women and 45% are men, this is the opposite case worldwide where there are more male users, compared to 2021 there was a small increase in male users [44].

Finally, in the case of Facebook, the United States has a total of 307.34 million users [45] and a monthly active audience of 179.65 million users [46]. This means that 58.45% of total users are active monthly users (they access their accounts at least once a month).

In the United States, there is a general trend toward the use of the Internet as a source of health information. Approximately 59% of adults in the country seek information related to caregiving. Additionally, it has been found that social networks have been a source of support for paternity and health issues for mothers. This information has been used to cope with everyday situations because it makes it easy to find information. A study of mothers in the DMV area showed that parents seek immediate and reliable information through social networks. A commonly used tool is Facebook Groups where users can post their questions about different topics either anonymously or publicly. This allows them to find immediate information from different sources that they consider to be experienced, pertinent, and adequate towards solving doubts or for the information they seek. Thanks to the interaction with these communities, it is easier to homogenize behaviors and attitudes towards different topics, which turns networks into a way of modeling behaviors, establishing norms, and shaping instinctive decision-making or decision by consensus; because of the interactions with other users it is easier to make conscious decisions based on trust. Sources from the same study affirm that when a user asks a question on social networks and it is answered by other users, there is a greater degree of reliability than when that user searches for the necessary information in other Internet sources [47].

In the aftermath of the COVID-19 pandemic, across the United States, federal health agencies have used social media to promote self-care and important disease information, focusing on engaging users so that they not only read but also spread, promote, and encourage information [48]. In the case of Virginia, medical organizations such as the Centers for Disease Control and Prevention (CDC) or the Food and Drug Administration (FDA) have been in charge of disseminating information about medical events, updates, or information necessary for the public. To do this, they use social networks as a fundamental tool to reach their target audience. An example of this was during the COVID-19 pandemic, information relating to vaccines was mainly distributed through the social network Facebook. In it, eye-catching advertisements

were used to inform people about updates regarding the use of face masks, distribution and availability of vaccines, and case testing. The importance of this lies in the fact that all activities carried out in the city, both for education and recreation, were restricted and evaluated by the CDC, and even though it is an institution that works throughout the country, the restrictions were different for each state depending on the number of cases; therefore, the use of advertising allowed the CDC to show important and updated information on regulations every time a user opened the Facebook application. This is a different use of social networks because the objective was to inform and not generate a response [14].

A university study showed that Facebook was used to connect with friends in the real world and applications based on images or videos were used to connect with strangers. Instagram is widely regarded as a source of inspiration for lifestyle choices, particularly those led by models, athletes, influencers, and personal trainers. All these profiles are characterized by being healthy and by dedicating themselves to health, nutrition, and exercise. In this study, influencers were used to promote products where the advertising is not distinguishable from their regular content and is hidden from the user's feed. This content is characterized by the fact that the success of the publication depends on the presentation of the advert and the confidence of the user in the source of the advertising, that is, the user's trust in the influencer who is promoting the product or service; therefore, the evaluation by the user is not based on the actual content of the advertisement. The user better understands the credibility of the product because of the perceived reality, meaning that the user's perception is based on the shared stories from the influencer's individual experiences with the product considering factors such as the type of language and the usage of positive messages [49].

Posting times can also influence advert reach. For the specific case of Virginia, the best time to post is at night [50].

6. DISCUSSION AND CONCLUSIONS

Social networks were created to facilitate communication between users, however, due to the great growth and evolution in the use of the internet and advertising, social networks took on a fundamental role in the way users consume and acquire products. For this reason, social networks implemented advertising platforms that allow users to be informed or attracted, as is the case for advertisements, or simply serve as a form of commercializing products, such as Facebook Market. The demographic characteristics of users allow the identification of potential profiles that consume certain content; therefore, advertising has focused on identifying these profiles and

segmenting advertising depending on the needs of customers. For this reason, it is necessary to identify user preferences and how aspects such as age are of great influence when it comes to attracting the target audience. With this we can conclude that platforms based on images or videos are more attractive to the younger audience, allowing influencers to play a fundamental role in promoting products or services; young users believe more in the recommendations of other users than in traditional methods of advertising. Regarding adults, the consumption of social networks is more focused on communication, therefore, platforms such as Facebook are more attractive when searching for information or consuming advertising. In the Arlington VA community, social media is an important source of information as users turn to groups or Facebook adverts for answers to their needs. Another interesting aspect of the community is that they use social networks at night. This can generate an impact on the publicity audience because there are more active users who can access the content. Additionally, the use of social networks as a source of information through advertising is widely used in this community. This is because associations such as the Centers for Disease Control and Prevention (CDC) or the Food and Drug Administration (FDA) make use of the platform to spread valuable information. This was the case of the information related to the COVID-19 pandemic, where Facebook became an important source of information about vaccines and the new government regulations regarding the pandemic.

In addition to being a compilation of information about the use of social networks in the Arlington Virginia area, it is intended to serve as a basis for the analysis of user behavior depending on age and the environment in which the consumption of social networks takes place in the city. With this, it is possible to give way to advanced studies about the influence and/or efficiency of advertising campaigns for the different target audiences.

The limitations of the project lie in the difficulties associated with access to information, with conclusions dependent on the amount of data that organizations or people openly provide for studies. Also, the speed with which the environment of social networks changes presents difficulties since the information must be updated and evaluated as social networks grow.

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