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# Sectoral and gender characterization of social media influencers in X

## Caracterización sectorial y de género de los influenciadores de medios sociales en X

*Caracterização setorial e por gênero dos influenciadores de redes sociais em X*

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**ABSTRACT |** In order to carry out communication campaigns in the field of influencer marketing, it is necessary to study the suitability of the influencer and the social network to be used. To this end, this research aims to characterize X (formerly Twitter) according to the field of activity and gender of the social media influencers (SMI) who are so successful that they can be considered celebrities. To determine this characterization, the presence and engagement of 60 Spanish SMI was studied. The last 3,200 original tweets of each influencer were collected. Presence was analyzed using descriptive statistics by sector and gender. For the study of engagement we used the composite index calculated in Muñoz and colleagues (2022), obtained using the TOPSIS multi-criteria method, which we used to analyze the differences between sectors and gender. The sectors with the highest presence in X are technology, business and, to a lesser extent, video games. The latter is the sector with the highest engagement. However, not only depends on the sector in which the SMI specializes, but is also highly dependent to a large extent on his/her personality. In terms of gender, it is mainly men who also achieve the highest engagement. These results make X a particularly suitable network to promote products related to the video game industry and aimed at a male audience.

**KEYWORDS:** engagement, gender, sector of activity, social media influencer, Twitter, X.

**HOW TO CITE**

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***RESUMEN |*** *Para llevar a cabo campañas de comunicación de marketing de influenciadores es necesario estudiar su idoneidad y la de la red social a utilizar. Esta investigación pretende poner de manifiesto la caracterización de X (anteriormente Twitter) en función del sector de actividad y el género de los influenciadores de medios sociales (SMI, por su sigla en inglés) tan exitosos que pueden considerarse celebridades. Para ello, se analizó la presencia y el engagement de 60 SMI españoles, recopilando los últimos 3200 tuits originales de cada influenciador. El análisis de la presencia por sector y género se realizó mediante estadística descriptiva. Para estudiar el engagement se utilizó el índice compuesto calculado en Muñoz y sus colegas (2022), obtenido mediante el método multicriterio TOPSIS, a partir del cual se han estudiado las diferencias de sector y género. Los principales resultados indican que los sectores con mayor presencia en X son el tecnológico, el de negocios y, en menor medida, el de videojuegos. Este último es el que consigue mayores niveles de engagement. Sin embargo, este no viene condicionado solo por el sector de experiencia del SMI, sino que depende en gran medida de su personalidad. En cuanto el género, es principalmente masculino, que también es el que consigue un mayor engagement. Estos resultados hacen de X una red especialmente adecuada para promocionar productos relacionados con el sector de videojuegos y aquellos destinados al público de género masculino.*

***PALABRAS CLAVE:*** *engagement, género, sector de actividad, social media influencer, Twitter, X.*

**RESUMO |** Para a realização de campanhas de comunicação no domínio do marketing de influência, é necessário estudar a adequação do influenciador e da rede social a utilizar. Para tal, esta pesquisa pretende caraterizar o X (antigo Twitter) de acordo com o sector de atividade e o gênero dos influenciadores dos iedes sociais (SMI, pela sigla em inglês) que têm tanto sucesso que podem ser considerados celebridades. Para determinar esta caracterização, analisou-se a presença e o engajamento dos 60 SMI espanhóis. Foram coletados os últimos 3.200 tweets originais de cada influenciador. A presença foi analisada por sector e gênero, por meio da estatística descritiva. Para o estudo do engajamento, foi empregado o índice composto calculado em Muñoz et al. (2022), que foi obtido utilizando o método multicritério TOPSIS, e a partir dele foram estudadas as diferenças sectoriais e de gênero.Os principais resultados indicam que os sectores com maior presença em X são a tecnologia, o comércio e, em menor medida, os jogos de vídeo. Este último é o sector com os níveis mais elevados de envolvimento. No entanto, isso o não é apenas condicionado pelo setor de especialização do SMI, mas depende também, em grande medida, da sua personalidade. Quanto ao de gênero, a maioria são homens, são sobretudo os homens que também alcançam os níveis maiores de engajamento. Estes resultados fazem de X uma rede particularmente adequada para promover produtos relacionados com o sector dos jogos de vídeo e destinados a um público masculino.

**PALAVRAS-CHAVE:** engajamento, gênero, setor de atividade, influenciador de redes sociais, Twitter, X.

## INTRODUCTION

Given the current importance of social media and social networks (SN), social media influencers (SMI) can now be considered as new points of reference for consumers and have become a valuable marketing tool. SMI activities have brought so much success to the people behind the accounts that some can be considered real celebrities whose reach extends much further than a platform or a niche thanks to their regular appearances in traditional media.

Despite their reputation, SMIs need to gain the trust of the public if they are to participate in influencer marketing campaigns. There is evidence that in order to gain this trust, advertisements usually try to show stereotypes that are adopted by the target audience so that this audience identifies with the advertisement and sees the messages in a pleasant and credible context (Rojas-de-Gracia et al., 2019). In fact, SMIs or celebrities with demographic characteristics similar to those of the target audience have greater persuasive power (Hudders & De Jans, 2022; Schiffman et al., 2010). It is also undisputed that one of the most important demographic characteristics is gender (Bui, 2017; Hoffner & Buchanan, 2005).

Another fundamental factor in the selection of influencers is credibility. This can be achieved through experience with the type of product they are promoting and the activity or sector with which the product is associated, among other factors (Choi & Rifon, 2012; Goldsmith et al., 2000). An example is Nike's product line, which was promoted by the famous basketball player Michael Jordan, in part because of the match between him and the products he was promoting (Kellner, 1996).

In influencer marketing, not only must the characteristics of the sender be taken into account, but the channel through which the message is sent is also a factor in its effectiveness. In this regard, it is a mistake to speak of social media in general, because each social network has its own target groups and characteristics (Bakker, 2018; Balbuena et al., 2016). One social network with clearly defined distinguishing characteristics is Twitter (Rogers, 2014), now known as X. Although it peaked between 2010 and 2015, it is currently one of the five most popular social networks worldwide with 556 million users (Kemp, 2023), not counting instant messaging apps such as WhatsApp and Telegram or China-specific websites such as Sina Weibo. The community is still very active as it allows users to share their opinions and experiences through posts, and it is also a means of exchanging messages among thousands of young people (Karimi et al., 2023).

However, not all influencers are present on X. The most successful SMIs, and therefore those who experience the most engagement, choose the social media sites where they are most active and present. They do this knowing that their social media presence should be strategic and that it is not necessary, or in many cases

even appropriate, to be present on all platforms (Newberry, 2023). Identifying that there is specialization in X, as is the case with traditional media (e.g., channels focused on sports or entertainment), would be very helpful for communication campaigns. So if specialization by topic is identified, this could help communication campaign managers not only in choosing the right SMI, but also in selecting the network in which to do their work.

Given the large number of social media users and the variety of content they publish, making industry specializations clear on X is a complicated task. Therefore, this project will focus on investigating the presence and engagement of the most successful SMIs in Spain in 2020 on X.

## STATE OF THE FIELD

### Sectoral characterization of SMIs on X

An indication of the difficulty associated with the sectoral characterization of SMIs on any social media platform, including X, is the lack of recent studies. Various researchers have noted that much of the content posted is generally banal and they consider it to be meaningless blather (Pear Analytics, 2009; Rogers, 2014). Nevertheless, researchers recognize that this content can coexist with other valuable content such as information about important events (Rogers, 2014).

In their in-depth study to determine the most popular topics on X, Lee and colleagues (2011) categorized trending topics into 18 categories, with sports, news, music, television and movies being the ones with the highest number of trending topics. The importance of the leisure aspect is confirmed here, albeit in connection with news. Catalina-García and Suárez-Álvarez (2022) studied the most successful videogame influencers and found that their tweets mostly revolved around sports issues, confirming the presence of entertainment topics.

Apart from these studies, no publications have been identified that are relevant and analyze which topics are most present, receive the most user interest and consequently the most engagement on X. Therefore, our work takes a novel approach to this issue: once the SMI that can be considered celebrities and their field of expertise have been identified, their presence and engagement on X are analyzed and compared. This is a useful approach as it allows us to determine whether there is specialization by topic on this social media platform. This leads us to our first research question:

> *RQ1.* In which areas are the SMI, who can be regarded as celebrities, most present and have more engagement on X?

Once the most influential sectors have been identified, the next step is to examine the differences in engagement between SMIs in the same sector. The closer these scores are, the smaller the role of engagement in choosing the best SMI, and the choice is more likely to be determined by who is sending the message. Indeed, numerous studies have highlighted the importance of personal characteristics of celebrities, such as their charisma or personality, in the success of advertising campaigns of the brands that use them (Hoegele et al., 2016; Kumar, 2011; Lunardo et al., 2015). This brings us to our second research question:

*RQ2.* Is the influence of celebrity SMIs in the same sector homogeneous?

**Characterization of SMIs by gender on X**

The studies that have examined gender differences in influential people are mainly from the fields of politics, health, and research. In politics, the general conclusion is that social media presence and activity is greater among male politicians (Bode, 2017; Hubner & Bond, 2022; Lilleker et al., 2023; Samuel-Azran & Yarchi, 2023; Woitowich et al., 2021). On the other hand, other studies have found no gender difference in presence in areas such as health, politics, education and library staff (Anasi, 2018; Just et al., 2016; Patahuddin et al., 2022; Zhu et al., 2019). Other research has found, albeit to a lesser extent, a greater presence of women than men in politics on X (Evans & Clark, 2016; Wagner et al., 2017). In particular, Wagner and colleagues (2017) suggest that female candidates for US Congress are more likely than men to use Twitter in their campaigns because they believe that female candidates start in a disadvantaged position compared to men and that this platform is a useful political tool.

Studies also show that male influencers generally show greater engagement. This mostly occurs on X and in the fields of research and health professions (Dalyot et al., 2022; Feng & Ivanov, 2023; Goyanes et al., 2024; Hu et al., 2023; Hubner & Bond, 2022; Zhu et al., 2019). Demailly and colleagues(2020) found no significant differences in the number of followers on X, but they concluded that women were followed significantly less on ResearchGate. There are also authors (in smaller numbers) who find no gender differences in engagement, and not only on Twitter (Klar et al., 2020; Patahuddin et al., 2022). On the contrary, some studies that focused on the Facebook posts of political leaders identified more engagement among women than men (Samuel-Azran & Yarchi, 2023; Yarchi & Samuel-Azran, 2018). Hudders and De Jans (2022) studied professional influencers who promoted products and concluded that women on Instagram showed more engagement and mainly influenced other women, although they did not focus on a specific sector.

It is natural to wonder what happens in the case of SMIs, which leads us to the third and final research question:

*RQ3*. Are there differences between the celebrity SMIs on X in terms of presence or level of engagement?

Table 1 summarizes the research that has looked at the presence and engagement of influential people on social media, taking into account areas of activity and gender differences.

| Authors (year) | Methodology | Main contributions |
|---|---|---|
| Pear Analytics (2009) | Descriptive statistics | Most content is meaningless chatter, and only a minority of tweets offer information of value. |
| Lee et al. (2011) | Classification model | Highly atomized topics, with sports, news, TV and film, and music particularly prominent. |
| Rogers (2014) | Qualitative analysis | Suitable as an emergency communication channel in times of crisis and other major events. |
| Evans & Clark (2016) | Qualitative analysis | Female candidates address political issues to a greater extent than their male counterparts and are exposed to offensive content. |
| Just et al. (2016) | Comparison of proportions | There are no gender differences in terms of frequency of use or content on politics. |
| Bode (2017) | Logistic regression | Men post more content about politics. |
| Wagner et al., (2017) | Qualitative analysis | Female candidates are more likely to incorporate Twitter into their campaigns. |
| Anasi (2018) | Comparison of means | There are no gender differences in the use of social media for professional development of library staff. |
| Yarchi & Samuel-Azran (2018) | Multi-level model | Posts by female politicians receive more reactions on Facebook. |
| Zhu et al. (2019) | Comparison of means | Although Twitter is used by health professionals across genders, men have a larger audience on this network. |
| Demailly et al. (2020) | Descriptive statistics | There are no differences in the number of followers of healthcare professionals on Twitter or LinkedIn, but female healthcare professionals have significantly fewer followers on ResearchGate than men. |
| Klar et al. (2020) | Negative binomial model | There are no differences between genders when a scientific article is shared on Twitter. |
| Woitowich et al. (2021) | Comparison of frequencies | Men in healthcare have a greater presence on social media for professional purposes than women. |
| Hudders & De Jans (2022) | Sequential mediation models | The gender of an influencer has a different impact on men's and women's attitudes towards sponsored brands on Instagram, with the impact being greater for women. |

*Table 1 - Continues* ▸

| | | |
|---|---|---|
| Patahuddin et al. (2022) | Comparison of means | There are no gender differences in terms of social media presence and interaction among secondary school teachers. |
| Dalyot et al. (2022) | Descriptive statistics | Posts by female academics on Facebook receive more irrelevant comments and fewer relevant comments, as well as more hostile and positive comments. |
| Hubner & Bond (2022) | Descriptive statistics | Men are more represented among researchers on Reddit and generally receive more comments, although women receive more positive comments. |
| Catalina-García & Suárez-Álvarez (2022) | Analysis of sentiments | The tweets of highly successful influencers deal with sports topics. |
| Feng & Ivanov (2023) | Overall sentiment index | Posts by men on Weibo receive more attention and spark more interactive behavior than posts by women. |
| Lilleker et al. (2023) | Ordinal logistic regression | Women on Facebook and Twitter share and comment on fewer posts with political content than men. |
| Samuel-Azran & Yarchi (2023) | Comparison of means | More posts on Facebook are about male politicians, although the posts directed at women express significantly more support for them. |
| Hu et al. (2023) | Descriptive statistics | In politics, women retweet more than men, especially tweets by men. |
| Goyanes et al. (2024) | Linear regression | According to Google Scholar, women are cited less in all fields, even in fields that are traditionally considered feminine. |

**Table 1. Previous studies of sectoral characterization and gender on Twitter**

*Source: Own elaboration.*

## OBJECTIVES

The starting point for answering the research questions is to identify a group of male and female celebrity SMIs who are leading voices in a variety of activities that influencers typically engage in. The researchers' aim was to achieve the following objectives:

1. Identify the sectors in which celebrity SMIs are more strongly represented (RQ1).
2. Identify the sectors in which prominent SMIs receive the most engagement on X (RQ2).
3. Analyze the intrasectoral differences in engagement on X among celebrity SMIs (RQ2).
4. Identify the gender differences in the presence on X among celebrity SMIs (RQ3).

5. Identify the gender of celebrity SMIs who have the most engagement on X (RQ3).
6. Identify average engagement by sector and gender of celebrity SMIs with a presence on X (RQ1 and RQ3).

## METHODOLOGY

### Sample characteristics

To conduct this research, we started from Forbes magazine's list of the 100 most successful Spanish influencers in 2020 ("Los 100 mejores...", 2020). We decided that, given the different cultural contexts, it would be best to limit ourselves to one country, as an influencer in one country may be unknown in another. We chose Spain because it is the authors' home country, which allows the results to be interpreted with a better understanding of the context.

This list does not contain a ranking in the strict sense. Rather, it lists the ten influencers with the most followers by 10 sectors: beauty (Be), business (Bu), fashion (F), gastronomy (G), lifestyle (L), motor (M), sports and fitness (S), technology (Te), travel and tourism (To), and videogames (V). Ultimately, only 60 influencer accounts were analyzed, as the rest either did not have a Twitter account or their Twitter account was inactive in the three months immediately preceding the data collection on November 12-14, 2020. At that time, the social network in question had not yet changed its name to X. The most recent 3,200 tweets sent by each influencer were collected for the analysis. Only tweets that originally came from the influencer were considered; retweets were not included. Although the influencers are SMIs, the number of followers in this group varies widely, ranging from 815 followers to 15,516,725, with an average of 923,752 (table 2).

There are notable differences in the number of SMIs per sector. Of the ten SMIs that Forbes selected in each sector, in some sectors only three were analyzed after limiting the scope to active Twitter/X accounts (fashion, lifestyle, sports and fitness), while in other sectors, such as technology and business, all ten accounts were included in the analysis. The size of the resulting sample therefore suggests that there are large differences in presence on X across sectors. There are also gender differences, as of the 40 SMIs eliminated from the sample, 13 were men and 27 were women.

| Name | X account | Short form name | Name | X account | Short form name |
|---|---|---|---|---|---|
| Álvaro Cruce | @AlvaroKruse | Be1 | Juan Francisco Calero | @JFCalero | M6 |
| Marta Bel Díaz | @heyRatolina | Be2 | Majes en Moto | @MajesEnMoto | M7 |
| Isabel Llano | @isasaweis | Be3 | Saúl López | @slcuervo | M8 |
| Judith Jaso | @JudithJaso | Be4 | Cisco García | @CiscoGarVe | S1 |
| Dámaris Pérez | @Lizyy_p | Be5 | Sergio Peinado | @Sergio_Trainer | S2 |
| Alfredo Vela Zancada | @alfredovela | Bu1 | Verónica Costa | @vikikacosta | S3 |
| Chema Alonso | @chemaalonso | Bu2 | Elena Santos | @chicageek | T1 |
| Enrique Dans | @edans | Bu3 | Carolina Denia | @clipset | T2 |
| Emilio Márquez | @EmilioMarquez | Bu4 | Cristian Domínguez | @DanteGTX3 | T3 |
| Elena Gómez Pozuelo | @gomezdelpozuelo | Bu5 | Jaume Lahoz | @jaume_jlb | T4 |
| Juan Merodio | @juanmerodio | Bu6 | Miguel Ángel Muñoz | @MovilZona | T5 |
| Marc Vidal | @marcvidal | Bu7 | Nate Gentile | @nategentile7 | T6 |
| Santiago Íñiguez | @SantiagoIniguez | Bu8 | Eduard Esteller Madroñal | @ProAndroid | T7 |
| Euge Oller | @TechEuge | Bu9 | Antonio SFDX Show | @sfdxpro | T8 |
| Alfonso Alcántara | @Yoriento | Bu10 | Manuel Prol Pérez | @TuAppleMundo | T9 |
| Alexandra Pereira | @LovelyPepa | F1 | Victor Abarca | @victor_abarca | T10 |
| Manu Ríos | @manuriosfdez | F2 | David Rocaberti | @DavidRocaberti | To1 |
| Pelayo Díaz | @princepelayo | F3 | Gotzon Mantuliz | @gotzonmantuliz | To2 |
| Martha Sanahuja | @DeliciousMartha | G1 | Carol Peña | @misshedwig | To3 |
| Mikel López Iturriaga | @ElComidista | G2 | Adrián Rdz. y Gosi Bendrat | @mola_viajar | To4 |
| Laura López Pinos | @lauraponts | G3 | Oliver Vegas | @ovunno | To5 |
| Miquel Antoja | @MiquelAntoja | G4 | Alejandro Bravo | @aLexBY11 | V1 |
| Diego Barrueco | @DiegoBarrueco | L1 | Raúl Álvarez | @auronplay | V2 |
| Gala González | @GalaGonzalez | L2 | Ibai Llanos | @IbaiLlanos | V3 |
| Álvaro Mel | @MeeeeeeeeL_ | L3 | Miguel Bernal | @MikecrackYT | V4 |
| Marcos Micz | @ByMicZ | M1 | Rubén Doblas | @Rubiu5 | V5 |
| Dani Clos | @daniclos | M2 | Sara Piñeiro | @Sarinha_3 | V6 |
| Beatriz Eguiraun | @Eguiraun | M3 | David Cánovas | @TheGrefg | V7 |
| Guille García Alfonsín | @GuilleAlfonsin | M4 | Samuel Luque | @vegetta777 | V8 |
| Mario Herráiz | @HerraizM | M5 | Guillermo Díaz | @WillyrexYT | V9 |

**Table 2. Name, account and short form name of SMIs included in the sample**

*Source: Own elaboration.*

### Measuring engagement on X and compiling indicators

Muñoz and colleagues (2022) proposed a holistic measurement of engagement with the medium then known as Twitter. The method used a combination of indicators that were synthesized into a composite index using the TOPSIS multicriteria technique. Subsequently, their proposed index was applied to the same sample of SMIs used in this study to demonstrate its practical utility. The proposed index calculates engagement by combining two foci: production and popularity. The production metric considers interactions with SMI users (likes, retweets and replies) in relation to tweets, e.g., the number of likes per tweet. The popularity metric considers interactions in relation to followers, e.g., the number of likes per follower. Table 2 in Muñoz et al. (2022) lists the indicators used to measure engagement. Their methodology section provides a detailed explanation of the TOPSIS methodology used to create the composite engagement index.

The Twitonomy application was used by Muñoz and colleagues (2022) to collect indicators. This tool provides a wide range of data on individual X accounts and competition. Among other things, it provides the number of followers and tracks users' tweets, including retweets, replies, mentions, tags and the frequency of all these actions. It also shows how these tweets are shared in the form of likes and retweets. Information on changes in tweets and followers over the last 30 days was obtained from the website SocialBlade (https://socialblade.com/twitter/). The final corpus analyzed in this study consisted of 144,989 tweets, which corresponds to an average of 2,416 tweets per SMI, as explained in section 4 of Muñoz and colleagues (2022), where they explain the proposed engagement index for the SMI sample. As this paper relies on the data collected in their research, the number and average of tweets are consistent with the numbers analyzed here.

### Tests carried out

To achieve objective 1, presence on X, the data on presence on X was calculated using descriptive statistics. To compare sectoral engagement, which is the focus of objective 2, the sectoral averages of the individual engagement indices ($Ci$) were calculated, which were determined in Muñoz and colleagues (2022). They can be found in table 4 of that work. In relation to objective 3, which aims to determine whether the influence of the SMIs is homogeneous within the same sector, the standard deviation of each engagement index within each sector was determined.

The characterization by gender, which is the focus of objective 4, was analyzed using descriptive statistics, as was the case for sectoral presence. The Mann Whitney U-test was used to fulfill objective 5, which asks whether there are significant differences in engagement between the genders. This test is appropriate here as the aim is to compare engagement in two non-parametric independent samples. Finally, objective 6 was met by calculating the average engagement by gender in each of the areas analyzed.

## RESULTS

Table 3 in Muñoz and colleagues (2022) summarizes the number of SMIs included in the sample, with a breakdown by sector and gender. When analyzing sectoral presence, there are differences between sectors (as previously mentioned). Table 3 shows sectoral activity in terms of the number of tweets in a particular sector. A column with the age of the SMI has been added to better characterize this sectoral behavior.

In Muñoz and colleagues (2022), table 4 shows the individual ranking of each of the accounts included in the sample. To facilitate identification and cross-referencing, table 2 of this paper uses the same SMI abbreviation as our reference work. To provide an analysis for objective 2 of this paper, we turn to figure 1, which uses the previously mentioned rankings and depicts sectoral activity using a bar chart of the average engagement indices of SMIs in the same sector. As expected from the individual rankings, the video games sector leads the sectoral rankings, closely followed by the fashion industry. The other sectors are far behind these two, but close to each other. On the other hand, differences can be observed between the four middle sectors (sport and fitness, motor, lifestyle and technology). There are also differences between the four lowest-rated sectors (business, beauty, travel and tourism and gastronomy).

Regarding objective 3, the degree of distribution of engagement among SMIs in the same sector can be seen from the line in figure 1, which shows the standard deviation. A small value means that these influencers have a similar level of engagement. In this case, we could conclude that there is a relatively homogeneous engagement behavior in the sector. However, there is a high degree of variation across all sectors. The case of fashion is particularly noteworthy because the sample includes only three celebrities and they occupy rank positions that are far apart from each other. This explains the distribution level, which is almost twice as high as the average value. Other sectors, such as videogames, sports, motor and technology, show above average distributions, albeit to a lesser extent. In light of this, we can confidently conclude that there is generally no homogeneity of performance at sector level.

To answer objective 3 regarding the differences in presence between genders, it has already been made clear that the number of men in our sample (45) is higher than that of women (16). There are 61 influencers in total because the sample includes a travel and tourism account whose owner is a couple who share equally in the account. The overwhelming number of SMI accounts owned by men is indicative of the inequality that exists not only between sectors, but also between genders.

| Sector | Average number of analyzed tweets | Range in number of tweets (min.-max.) | Average SMI age by sector | Range in SMI age (min.-max.) |
|---|---|---|---|---|
| Beauty | 2,225 | 498-2689 | 36 | 24-48 |
| Business | 2,499 | 793-2691 | 53 | 34-67 |
| Fashion | 2,659 | 2641-2692 | 33 | 25-38 |
| Gastronomy | 1,622 | 260-2692 | 40 | 32-56 |
| Lifestyle | 2,647 | 2595-2685 | 33 | 28-38 |
| Motor | 2,060 | 193-2692 | 36 | 27-47 |
| Sports and fitness | 2,314 | 1757-2643 | 37 | 34-41 |
| Technology | 2,580 | 1598-2692 | 36 | 27-49 |
| Travel and tourism | 2,623 | 2376-2691 | 42 | 36-51 |
| Video games | 2,681 | 2658-2690 | 32 | 27-38 |

**Table 3. Sectoral characterization of the sample**

*Source: Own elaboration.*

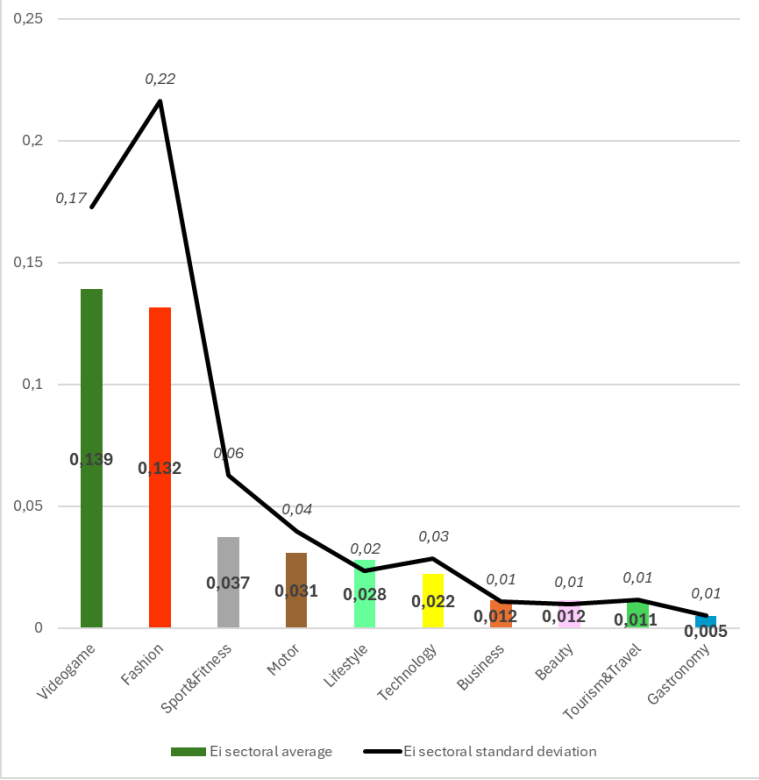


**Figure 1. Average value and standard deviation of sectoral engagement**

*Source: Own elaboration.*

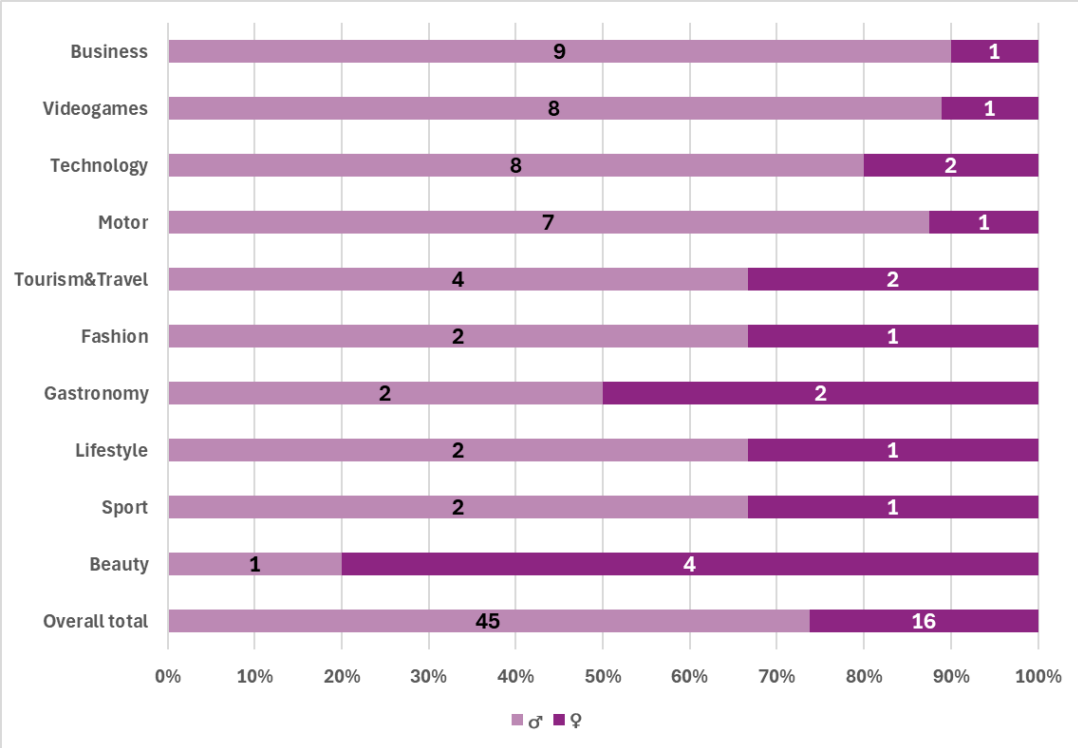


**Figure 2. The presence of influencers in each sector by gender**

*Source: Own elaboration.*

Figure 2 shows the distribution of SMIs in each sector and overall by gender, following the classification of the Forbes list. There are four sectors where the percentage of women is below 20%: business, videogames, motor and technology. Even in sectors that are traditionally considered female, such as fashion and lifestyle, the proportion of men is higher than that of women. Only in the beauty industry are more women represented.

As far as the last research objective, the differences in engagement between the sexes, is concerned, the result here is also in favor of men. This means that men have a greater engagement to X. In fact, the first woman in the individual ranking is ranked 8th and the second 24th. Similarly, the average engagement coefficient of male SMIs is 0.055, compared to 0.010 for women. The mean of the ranking positions for men is 25 compared to 46 for women. To confirm this, a Mann Whitney U-test was conducted for engagement score [U=150; $p$=0.01] and rank positions [U=148, $p$=0.01]. In both cases, there are significant differences in engagement between men and women, which are in favor of men.

To provide an answer to objective 6, the average engagement of the genders in each sector was analyzed. The results are shown in figure 3. It can be seen that the engagement of men is much higher than that of women in all sectors, with the curious exception of the technology and business sectors, where the opposite is true.

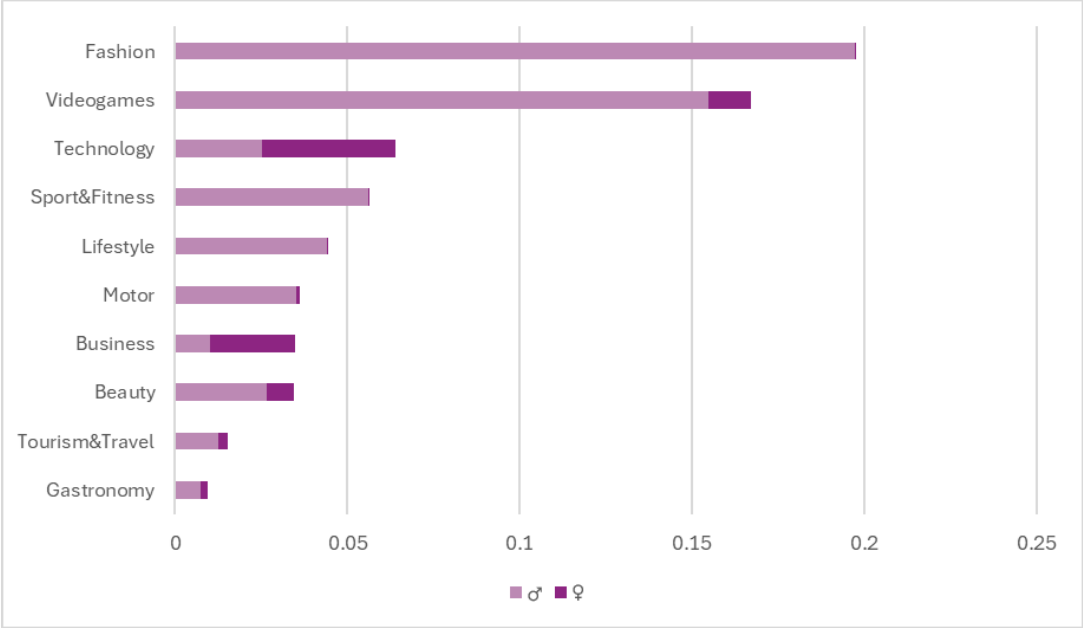


**Figure 3. Average engagement by gender across sectors**

*Source: Own elaboration.*

In the case of business, this is because the only woman in this sector has a significantly higher level of engagement than her colleagues. Of the nine men represented in this sector, five are in the bottom 20. One of the two women in the technology sector has a very high level of engagement and is therefore well above the average for women. In the other sectors, the average engagement of men is much higher. In the fashion, sport and fitness, lifestyle and motor sectors, women's contribution to engagement is almost zero.

## DISCUSSION

An examination of the sectors revealed that the number of SMIs with an active X account varies in the different sectors. Topics with a playful element, such as fashion, lifestyle, and sports and fitness, have a lower number of influencers. Influencers in these sectors may prefer other social media platforms such as Instagram, possibly because these have a more visual format than X and are therefore a better option for reaching more users (Wagner et al., 2023). In contrast, topics that could be considered more formal, such as technology and business, have a higher number of SMIs. The area of video games is the exception, as it has a large influencer presence on X and also achieves a higher level of engagement. This seems to confirm the idea that users use Twitter mainly for entertainment purposes, even if entertainment use goes hand in hand with learning useful and professional information (Catalina-García & Suárez-Álvarez, 2022; Pear Analytics, 2009; Rogers, 2014).

On the other hand, this sectoral analysis provides evidence of the importance of SMIs' personalities, as the differences in sectoral engagement levels suggest that personality is relevant to both the influencer's expertise and an SMI's ability to attract followers. This confirms the findings of studies on the importance of personality and charisma of influencers or celebrities as a decisive factor for the return of an advertising campaign (Hoegele et al., 2016; Kumar, 2011; Lunardo et al., 2015).

Regarding the characterization by gender, the results are consistent with the findings of most authors, showing that men have the greater presence (Bode, 2017; Hubner & Bond, 2022; Lilleker et al., 2023; Samuel-Azran & Yarchi, 2023; Woitowich et al., 2021) and greater engagement (Dalyot et al., 2022; Feng & Ivanov, 2023; Goyanes et al., 2024; Hu et al., 2023; Hubner & Bond, 2022; Zhu et al., 2019). In fact, videogames, the sector with the highest average engagement, are clearly dominated by men. Even in the fashion sector, which ranks second in engagement, women are not leading, as two of the three influencers in this sector are men, which is somewhat counterintuitive. Furthermore, one of these men, F2, ranks second in individual engagement across all sectors. Only in the technology and business sectors is female engagement greater than male engagement. This could be due to the extraordinarily successful performance of the few female influencers in these sectors. In these cases, the age factor stands out, as the women mentioned belong to Gen X and are highly respected in their fields.

These results only partially confirm the findings of other authors who have investigated differences between genders. Regarding presence on X, this work contradicts various studies that claim that women's presence and activities are generally greater than men's (Evans & Clark, 2016; Wagner et al., 2017) or that there are no differences (Demailly et al., 2020; Zhu et al., 2019). The greater presence of male SMIs compared to female SMIs on X that our research revealed suggests that women may find this social network suitable for topics related to politics, health or academic research, but not for other topics such as fashion or lifestyle, for which there are other and better social networks such as Instagram.

Where our findings are consistent with previous studies is the generally lower engagement of female SMIs compared to their male counterparts, whether on X (Hu et al., 2023; Hubner & Bond, 2022; Zhu et al., 2019) or on other social media platforms such as ResearchGate or Facebook (Dalyot et al., 2022; Demailly et al., 2020; Hubner & Bond, 2022). It is possible that despite its recreational nature, X conveys a more serious and professional image than other social media platforms (Power, 2014). Therefore, women's lower engagement on this platform may reflect the so-called Matilda effect, where women's voices are unfairly less influential and

have less reach than men's voices in serious environments (Knobloch-Westerwick et al., 2013; Zhu et al., 2019). All of this is the result of the historical tendency to minimize and ignore the value of women's contributions in certain fields.

Nonetheless, the fact that women have higher engagement in business and technology, areas traditionally associated with men, raises two important questions. It seems that society is moving in a positive direction in terms of equality and that it is no longer enough to have experience in a sector for an influencer to have engagement on X, but that personality and charisma have a much greater weight. This means that female SMIs who have charisma raise the average (Hoegele et al., 2016; Kumar, 2011; Lunardo et al., 2015). One could also add that female users with an interest in business and technology prefer to follow SMIs on X of their own gender, as they identify more with these SMIs (Hudders & De Jans, 2022; Schiffman et al., 2010). Since there are few female SMIs in these sectors, it is possible that they attract the attention of female X users and thus achieve higher engagement than their male counterparts, as there are more of the latter and the male SMIs compete with each other.

## CONCLUSIONS

This work has shown the gender and sectoral characterization of SMIs on X (formerly Twitter) who are so successful that they could be considered celebrities based on a study of their presence and engagement on this social media platform. The sectors with the greatest presence of SMIs are technology and business and, to a lesser extent, videogames, which has high levels of engagement. Nevertheless, engagement on this platform is not only determined by the sector in which the SMI has experience, but it depends to a large extent on the charisma and personality of the influencer. Interestingly, this is the case in all sectors except technology and business, where the small number of female SMIs see more engagement than their male counterparts.

These findings have two important practical implications that can help in deciding what characteristics an influencer should have for a marketing campaign on X in terms of industry and gender. The first is the suitability of X for campaigns where men are the main target audience, and in particular for an audience interested in videogames. Brands with a target audience more focused on formal topics can also find suitable SMIs for their campaigns on X, albeit to a lesser extent. Business and technology topics do not have the same degree of engagement on X as the videogames sector, but business and technology have a larger SMI presence and these influencers may be targeting niches in the market. The same interpretation

may be useful for content-creating SMIs, as their gender and sector may lead them to believe that X is a platform that fits well with their strategies.

Another important implication is that once companies or institutions have decided on the sector in which the SMI needs to be an expert in order to launch their communication campaigns on X, they need to evaluate to what extent the SMI's personality is an important aspect, as personality is a crucial factor for engagement on this platform. Unlike other, more visual platforms, the content on X is based on text and debates that the SMI often generates in real time, meaning that the content is very much dependent on the influencer. Companies and organizations must therefore weigh up whether the higher costs associated with the cachet and prestige of high-profile influencers are worth the expected differences in engagement.

This work is not without limitations. The first is time, as the data was collected in 2020. However, it has been confirmed that influencers are still active as celebrities on social media and on X. As the study is aimed at highly successful influencers, the sample size must inevitably be small, which is another limitation. This does not make the results useless, as it allows for a comparative analysis of the market and learning from the SMIs who have a larger number of followers. Nevertheless, it would be ideal to repeat this study in other countries as this would provide results from a larger number of influencers and allow comparisons to be made. On the other hand, adapting this work to SMI's activities on other social media platforms such as Instagram, YouTube, Facebook or TikTok would provide a more comprehensive and valuable look at the field of influencer marketing.

## REFERENCES

Anasi, S. N. (2018). Influence of gender on attitude towards the use of social media for continuing professional development among academic librarians in Nigeria. *Information and Learning Science*, *119*(3–4), 226–240. https://doi.org/10.1108/ILS-11-2017-0114

Bakker, D. (2018). Conceptualising Influencer Marketing. *Journal of Emerging Trends in Marketing and Management*, *1*(1), 79–87. https://www.etimm.ase.ro/RePEc/aes/jetimm/2018/ETIMM_V01_2018_57.pdf

Balbuena, A., Málaga, M., Morán, J., Osterling, A., & Valdivia, E. (2016). Voces virtuales: Análisis de la comunicación bidireccional y *engagement* en Facebook de dos partidos políticos en las elecciones nacionales 2016 (Virtual voices : Analysis of two-way communication and engagement on Facebook of two political parties in the 2016 national elections). *Comunicación Política*, (28), 6-33. https://hdl.handle.net/20.500.12724/6077

Bode, L. (2017). Closing the gap: Gender parity in political engagement on social media. *Information Communication and Society*, *20*(4), 587–603. https://doi.org/10.1080/1369118X.2016.1202302

Bui, N. H. (2017). Exploring similarity characteristics, identification, and parasocial interactions in choice of celebrities. *Psychology of Popular Media Culture*, *6*(1), 21–31. https://doi.org/10.1037/ppm0000082

Catalina-García, B. & Suárez-Álvarez, R. (2022). Twitter interaction between audiences and influencers. Sentiment, polarity, and communicative behaviour analysis methodology. *Profesional De La Información*, *31*(6), e310618. https://doi.org/10.3145/epi.2022.nov.18

Choi, S. M. & Rifon, N. J. (2012). It is a match: The impact of congruence between celebrity image and consumer ideal self on endorsement effectiveness. *Psychology & Marketing*, *29*(9), 639–650. https://doi.org/10.1002/mar.20550

Dalyot, K., Rozenblum, Y., & Baram-Tsabari, A. (2022). Engagement patterns with female and male scientists on Facebook. *Public Understanding of Science*, *31*(7), 867–884. https://doi.org/10.1177/09636625221092696

Demailly, Z., Brulard, G., Selim, J., Compère, V., Besnier, E., & Clavier, T. (2020). Gender differences in professional social media use among anaesthesia researchers. *British Journal of Anaesthesia*, *124*(3), e178–e184. https://doi.org/https://doi.org/10.1016/j.bja.2019.12.030

Evans, H. K. & Clark, J. H. (2016). "You tweet like a girl!": How female candidates campaign on Twitter. *American Politics Research*, *44*(2), 326–352. https://doi.org/10.1177/1532673X15597747

Feng, R. & Ivanov, A. (2023). Gender differences in emotional valence and social media content engagement behaviors in pandemic diaries: An analysis based on microblog texts. *Behavioral Sciences*, *13*(1). https://doi.org/10.3390/bs13010034

Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. *Journal of Advertising*, *29*(3), 43–54. https://doi.org/10.1080/00913367.2000.10673616

Goyanes, M., Tóth, T., & Háló, G. (2024). Gender differences in google scholar representation and impact: An empirical analysis of political communication, journalism, health communication, and media psychology. *Scientometrics*, *129*, 1719–1737. https://doi.org/10.1007/s11192-024-04945-0

Hoegele, D., Schmidt, S. L., & Torgler, B. (2016). The importance of key celebrity characteristics for customer segmentation by age and gender: Does beauty matter in professional football? *Review of Managerial Science*, *10*, 601–627. https://doi.org/10.1007/s11846-015-0172-x

Hoffner, C. & Buchanan, M. (2005). Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. *Media Psychology*, *7*(4), 325–351. https://doi.org/10.1207/S1532785XMEP0704_2

Hu, L., Kearney, M. W., & Frisby, C. M. (2023). Tweeting and retweeting: Gender discrepancies in discursive political engagement and influence on Twitter. *Journal of Gender Studies*, *32*(5), 441–459. https://doi.org/10.1080/09589236.2021.1995340

Hubner, A. Y. & Bond, R. (2022). I am a scientist.. Ask Me Anything: Examining differences between male and female scientists participating in a Reddit AMA session. *Public Understanding of Science*, *31*(4), 458–472. https://doi.org/10.1177/09636625211048775

Hudders, L. & De Jans, S. (2022). Gender effects in influencer marketing: An experimental study on the efficacy of endorsements by same- vs. other-gender social media influencers on Instagram. *International Journal of Advertising*, *41*(1), 128–149. https://doi.org/10.1080/02650487.2021.1997455

Just, M., Crigler, A. N., & Owen, R. (2016). Candidate use of Twitter and the intersection of gender, party, and position in the race: A comparison of competitive male/female Senate races in 2012 and 2014. In R. Davis, C. Holtz Bacha, & M. R. Just (Eds.), *Twitter and Elections around the World*, *February* (pp. 157–174). Routledge. https://doi.org/10.4324/9781315669113

Karimi, S., Shakery, A., & Verma, R. (2023). Enhancement of Twitter event detection using news streams. *Natural Language Engineering*, *29*(2), 181–200. https://doi.org/10.1017/S1351324921000462

Kellner, D. (1996). Sports, Media Culture, and Race – Some Reflections on Michael Jordan. *Sociology of Sport Journal*, *13*(4), 458–467. https://doi.org/10.1123/ssj.13.4.458

Kemp, S. (2023, January 2023). *Digital 2023. Global overview report*. https://datareportal.com/reports/digital-2023-global-overview-report

Klar, S., Krupnikov, Y., Ryan, J. B., Searles, K., & Shmargad, Y. (2020). Using social media to promote academic research: Identifying the benefits of twitter for sharing academic work. *PLoS ONE*, *15*(4), e0229446. https://doi.org/10.1371/journal.pone.0229446

Knobloch-Westerwick, S., Glynn, C. J., & Huge, M. (2013). The Matilda effect in science communication: An experiment on gender bias in publication quality perceptions and collaboration interest. *Science Communication*, *35*(5), 603–625. https://doi.org/10.1177/1075547012472684

Kumar, A. (2011). A study of various leadership styles and their importance for celebrities in Brand Endorsements. *Research Journal of Social Science and Management*, *1*(2), 2–16.

Los 100 mejores influencers 2020 (Top 100 Influencers 2020). (2020, October 1). *Forbes*. https://forbes.es/listas/76585/los-100-mejores-influencers-2020/74/

Lee, K., Palsetia, D., Narayanan, R., Patwary, M. A., Agrawal, A., & Choudhary, A. (2011). Twitter trending topic classification. In M. Spiliopoulou, H. Wang, D. Cook, J. Pei, W. Wang, O. Zaïane, & X. Wu (Eds.), *ICDMW 2011. 11th IEEE International Conference on Data Mining Workshops Twitter* (pp. 251–258). IEEE. https://doi.org/10.1109/ICDMW.2011.171

Lilleker, D., Koc-Michalska, K., & Bimber, B. (2023). Women learn while men talk?: Revisiting gender differences in political engagement in online environments. In A. Schiffrin, K. Koc-Michalska, & M. Ferrier (Eds.), *Women in the Digital World* (pp. 46–62). Routledge. https://doi.org/10.1080/1369118X.2021.1961005

Lunardo, R., Gergaud, O., & Livat, F. (2015). Celebrities as human brands: An investigation of the effects of personality and time on celebrities' appeal. In D. Brownlie, P. Hewer, & F. Kerrigan (Eds.), *Celebrity, Convergence and Transformation* (pp. 685–712). Routledge. https://doi.org/10.4324/9781315188300

Muñoz, M. M., Rojas-de-Gracia, M. M., & Navas-Sarasola, C. (2022). Measuring engagement on Twitter using a composite index: An application to social media influencers. *Journal of Informetrics*, *16*(4), 101323. https://doi.org/10.1016/j.joi.2022.101323

Newberry, C. (2023, October 4). *Should You Post to All Social Media at Once?* Hootsuite. https://blog.hootsuite.com/post-to-all-social-media-at-once/

Patahuddin, S. M., Rokhmah, S., Caffery, J., & Gunawardena, M. (2022). Professional development through social media: A comparative study on male and female teachers' use of Facebook Groups. *Teaching and Teacher Education*, *114*, 103700. https://doi.org/10.1016/j.tate.2022.103700

Pear Analytics. (2009). *Twitter Study - August 2009*. https://pearanalytics.com/wp-content/uploads/2012/12/Twitter-Study-August-2009.pdf

Power, A. (2014). Twitter's potential to enhance professional networking. *British Journal of Midwifery*, *23*(1), 65–67. https://doi.org/10.12968/BJOM.2015.23.1.65

Rogers, R. (2014). Foreword: Debanalising Twitter: The transformation of an object of study. In S. Jones (General Ed.), *Twitter and Society* (pp. ix–xxv). Peter Lang.

Rojas-de-Gracia, M.-M., Alarcón-Urbistondo, P., & Casado-Molina, A.-M. (2019). Is asking only one member of a couple sufficient to determine who influences tourism decisions? *Journal of Destination Marketing & Management*, *12*, 55–63. https://doi.org/10.1016/J.JDMM.2019.03.005

Samuel-Azran, T. & Yarchi, M. (2023). The "gender affinity effect" behind female politicians' social media support: Facebook civil talk during Israel's 2021 elections. *Online Information Review*, *47*(6), 1168–1189. https://doi.org/10.1108/OIR-04-2022-0199

Schiffman, L. G., Kanuk, L. L., & Wisenblit, J. (2010). *Consumer Behavior* (10th ed.). Pearson Education/Prentice Hall.

Wagner, E., Mendes, P. H., & Storch, F. (2023). The influence on cosmetics purchase intention of electronic word of mouth on Instagram. *Journal of Promotion Management*, *29*(7), 961-991. https://doi.org/10.1080/10496491.2023.2167897

Wagner, K. M., Gainous, J., & Holman, M. R. (2017). I am woman, hear me tweet! Gender differences in Twitter use among congressional candidates. *Journal of Women, Politics and Policy*, *38*(4), 430–455. https://doi.org/10.1080/1554477X.2016.1268871

Woitowich, N. C., Arora, V. M., Pendergrast, T., Gottlieb, M., Trueger, N. S., & Jain, S. (2021). Gender differences in Physician use of social media for professional advancement. *JAMA Network Open*, *4*(5), e219834. https://doi.org/10.1001/jamanetworkopen.2021.9834

Yarchi, M. & Samuel-Azran, T. (2018). Women politicians are more engaging: Male versus female politicians' ability to generate users' engagement on social media during an election campaign. *Information Communication and Society*, *21*(7), 978–995. https://doi.org/10.1080/1369118X.2018.1439985

Zhu, J. M., Pelullo, A. P., Hassan, S., Siderowf, L., Merchant, R. M., & Werner, R. M. (2019). Gender differences in Twitter use and influence among health policy and health services researchers. *JAMA Internal Medicine*, *179*(12), 1726–1729. https://doi.org/10.1001/jamainternmed.2019.4027

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