

Extracting Retrospective Information through the Public Sharing of Female Golfers' Contributions in a Digital Environment: An Analytical Perspective of Their Impact on Shaping Golf Communities

Lucia MALÍČKOVÁ *

University of Economics in Bratislava, Slovak Republic

*Corresponding author, lucia.malickova@euba.sk

Abstract. *Social media are an integrated part of everyday life. They are creating a new paradigm of information consumption. The era of popularity of searching for information in large texts is irreversibly gone. The current model of communication and information distribution favours visual content. One of the major social media platforms that specializes in expressive visual content is Instagram. The essence of a communication idea is effectively rendered in a unique image. Thus, it becomes a key tool for the transmission of communication. In the above technical paper, we present empirical data that investigate the impact of Instagram posts of three professional women golfers during the calendar year 2022. The first one is the most followed golfer on social networks, the second one ranks among the current best professional golfers and the third one holds the position of the president of the Slovak Ladies Golf Association. These prominent figures in golf create a significant impact on the social opinion of the sport. The central aim of the present study is to comprehensively understand how certain types of visual content, also created through AI, elicit maximum audience engagement on social media. We present the results in the context of correlating the influence of different factors on the level of viewer interaction. The value is expressed through the number of likes awarded and the size of the membership base of the affected accounts.*

Keywords: sports marketing, influencer, golf, social network, Instagram, AI

Introduction

Social media incorporates an integral segment of the everyday existential framework. They are in no way limited exclusively to younger individuals. These digital platforms represent the context in which individuals manifest their lives. In this way, they often only establish a virtual acquaintance. In the perspective of marketing activities, social networks play a key role. The ability to reach mass audiences is demonstrated using unique visual media, including photos and video content.

Golf faces significant resistance in the public because of many pre-conceived prejudices. In the context of promotion, it would be significant to find a cohesive combination of factors that would have the potential to reach a large audience (Nardello, 2017; Robertson, 2018). This research paper concentrates on systematically exploring and evaluating the optimal combination of aspects. Subsequently, an analytical distinction of the individual components emerges.

To cover a broad spectrum, we selected three distinct Instagram profiles. We systematically monitored them throughout the calendar year 2022. The first profile represents the Olympic gold medal winner and current most successful professional golfer, Nelly Korda. The second subject is a leading social media figure who, although not a professional golfer, derives her income from activities on digital platforms. Both personalities originate from the United States and have achieved global popularity. Their influence and character are disproportionate to the situation in Slovakia.

In the Slovak context, the golf culture is still in an embryonic stage, with a membership base not exceeding 10 thousand players. To ensure the relevance of this study for the local environment, the president of the Slovak Ladies Golf Association, initiated the creation of a new Instagram profile in 2022. In this way, it was possible to assess the impact of the Instagram account on golf awareness in the country's European center. No advertising strategies were deployed within this profile to increase the follower base. During the reporting period, we analysed the impact of factors including golf and private content publishing, holiday posts and other key aspects on audience response rates.

Literature review

In the context of the digital era and the evolution of social media, female golfers are gaining a prominent position as influencers on the Instagram platform. Their ability to combine their passion for golf with their personal stories and daily lives allows them to build authentic relationships with followers (Bowes & Kitching, 2021). This text will explore the influence of female golfers as influencers. It analyses how this group of female athletes shapes the online community and influences the perception of golf in the digital environment.

Women golfers on Instagram play a key role in promoting golf culture by breaking down the stereotypes associated with the sport. By sharing posts from golf courses, training moments and competitions, they create an image of an active and passionate approach to golf. Their online presence helps to democratize this traditional sport and contributes to its popularization, especially among the younger generation (McGinnis et al., 2005).

Female athletes don't just stop at presenting their sporting performance, they actively build their personal brands. By sharing stories from their personal lives, training regimes and travel experiences, they create an authentic and natural image of their personalities (Coche, 2014). This approach helps to create relationships with followers that are based on trust and authenticity.

Female golfers' social media influencers open commercial opportunities in the form of sponsorships and brand collaborations. Their ability to persuade and influence followers is an attractive factor for brands wishing to reach a target audience interested in golf (Do et al., 2015). Commercial partnerships not only provide golfers with financial support, but also contribute to the development of a commercial ecosystem within the golf community on the social network.

Methodology

Social media is not only used to document the daily activities of ordinary individuals, but it is also an important marketing tool to promote products or support specific industries. Through the publication of posts by female golfers, the sport of golf can take a place in the consciousness of individuals who have not yet come into direct contact with the sport. The main aim is to characterise the influence of different factors on the number of likes of female golfers' posts published on the social network Instagram. A detailed analysis of female golfers' profiles on that platform served as the starting point for this study. At the beginning of our research, we initially formulated a precise command for a specific algorithm labeled "create a likeness of a female golfer" within the framework of artificial intelligence. This command provided the AI with precise guidance to generate a visually appealing representation that would both match the specifications and gain the attention of the audience on social media. The data for this research was gathered from the post statistics of three golf profiles during one calendar year, 2022. Specifically, the top female golfer Nelly Korda (N=31), the most successful female golfer on social media Paige Spiranac (N=42),

and the president of the Slovak Ladies Golf Association, Lucia Malickova (N=139). By applying a regression model and using a correlation matrix, we identified key aspects that influence the effectiveness of social network posts.

Results and discussions

In today's digital age, where social media forms an important part of everyday life, there is an ever-increasing interest in content generated by personalities in the field of sport. Within this trend, a subset of female golfers who share their lifestyle on social media stood out. This article focuses on identifying the factors that influence the popularity of female golfers' social media posts. We focus on the types of content and style elements attracting the most attention from followers. The goal is to understand how content that resonates with the global community of women golfers and lovers of the sport can be shaped more effectively.

Artificial Intelligence (AI) is receiving increasing attention in digital content creation. It's not just in the realm of graphics and visual effects, but also in the creation of personalised and authentic personas of individuals. In the context of golf and social media, we created likenesses of female golfers using AI to highlight their individual style identity. Through AI, we created a precise algorithm with the command "generate a likeness of a female golfer". This methodological approach proved to be an effective tool for creating a visually appealing presentation that effectively promoted audience interaction. In the example in Figure 1, the persona of a female golfer can be identified, which correlates with empirical observations in real life. It illustrates the significant influence of feminine characteristics that lead to a significant increase in audience interactions.



Figure 1. Image of a female golfer, created by AI

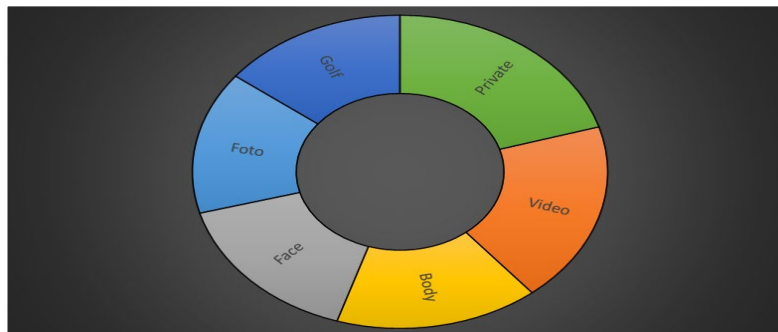
Source: AI 'research.

Nelly Korda, a descendant of Czech professional tennis players, represents American professional golf on the LPGA Tour. She stands out as a prominent figure in the women's golf world rankings, where she is ranked No. 1 by Bliss (2022). She holds an Olympic gold badge from the 2020 Summer Olympics in Tokyo, as reported by Chung (2022). Korda competed for Team USA at the 2019 and 2021 Solheim Cups, according to Bowes (2020, 2021). Her golfing talent was strongly evident at the age of fourteen at the 2013 US Women's Open, and at 18 she recorded her first professional tournament victory. The year 2021 became her most successful, when she won four professional tournaments, achieved an Olympic championship, and reached the No. 1 position in the Women's World Golf Ranking according to Arth (2022).

Despite gaining the No. 1 position in the women's world golf rankings signifies a huge professional achievement, Korda is not experiencing the same degree of influence on social media, which is dominated by non-professional female golfers. More than 743,000 users follow her on the

Photo	Video	Face	Golf	Private	
1,0000	-1,0000	0,3258	-0,3454	0,3454	Photo
	1,0000	-0,3258	0,3454	-0,3454	Video
		1,0000	-0,4057	0,4057	Face
			1,0000	-1,0000	Golf
				1,0000	Private
			Like	Comment	
			-0,2872	0,0210	Photo
			0,2872	-0,0210	Video
			-0,1293	0,1158	Face
			0,0282	-0,3231	Golf
			-0,0282	0,3231	Private
			1,0000	0,1353	Like
				1,0000	Comment

There is no correlation between individual factors, with a p-value of 0.3550. The impact of these factors on the number of "likes" and comments is not considered significant in 2022 for the 31 posts.



Source: Authors' own research.

A personality that stands out on the Instagram platform is that of a woman who is not exclusively a professional golfer. Recently, she has made a major name for herself with Paige Spiranac, who, originally excelling as a golfing talent, now provides us with the image of a media celebrity and influencer. Her intention is to introduce the world to how engaging the sport of golf

can be. She is specifically committed to promoting the active involvement of young women in the discipline and is a determined voice against cyberbullying (Hidalgo, 2017; Felmlee, 2020; Kavanagh, 2020; Krumsiek, 2017; McDonald, 2022). Paige Spiranac is constantly innovating approaches to attract new supporters and spread a positive message about golf.

Paige Spiranac's Instagram reveal was followed by a Total Frat Move article, which put her in the spotlight in a big way. Her follower base grew significantly from 10,000 to over 100,000 followers in two days. Since then, Paige has traveled the world playing golf and has become the most successful golfer on Instagram with 3.9 million followers (Weber, 2022). During 2022, she posted 42 posts, including 30 photos and 12 videos, which received a total of 7,375,277 "likes."

Table 2: Systematic analysis of the effect of factors including photo type, face posts and golf-themed content on the number of "likes" awarded on a social network.

	Coefficient	Std. Error	t-ratio	p-value	
const	186434	20179,9	9,239	<0,0001	***
Photo	36324,5	16822,9	2,159	0,0372	**
Face	-15252,8	16890,4	-0,9030	0,3722	
Golf	-60529,4	16522,7	-3,663	0,0008	***
R-squared	0,509759		Adjusted R-squared	0,471056	
F(3, 38)	13,17099		P-value(F)	4,81e-06	

Source: Authors' own research.

$$\hat{y}_i = 186434 + 36324,5x_1 - 15252,8x_2 - 60529,4x_3 \quad (1)$$

If Paige Spiranac creates a post in the form of a golf-themed photo showing her face, the response reaches 146,977 likes. In making a prediction, if Paige posts a photo of her face and reveals a portion of her private face, we predict that she will receive 207,505 likes. If the post is in the form of a video showing her entire figure while playing golf, we expect 125,905 likes.

The regression coefficient for the overall model, including the effect of all factors, reaches statistical significance, indicating that the combination of individual factors affects the number of likes. However, looking at these factors individually, we identify that the most significant influence on feedback lies in the correct decision in choosing between golf and private posts, and in the choice of photos and videos. A regression model with independent variables such as photo, face, and golf topic can explain 50.97% of the variability in the total number of likes. The remaining 49.03% of the variability in likes is due to factors not included in the regression model and random effects.

Although Paige Spiranac already wields significant influence on the social network, some of's posts are showing a higher response rate. Although one might assume that she would have the most success with golf posts, the reality is different. Posts from her private life show the most interest, as measured by the number of comments and likes. And although golf is a physical activity that is best presented in video form, in Paige Spiranac's case it is the photos that are gaining more popularity.

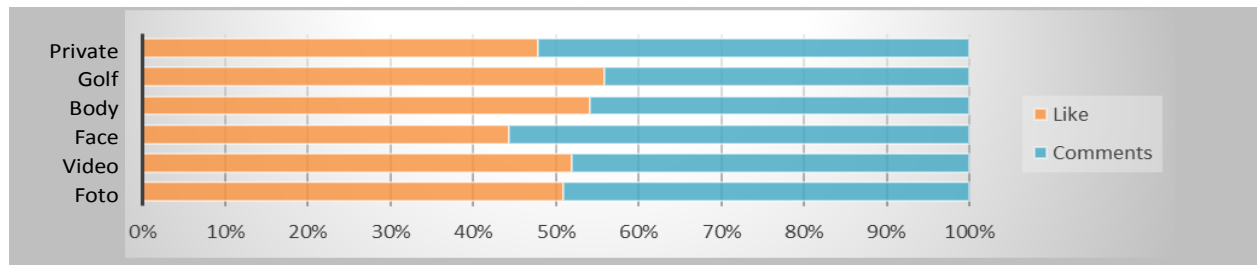


Figure 3. Analysis of reactions to social media posts with emphasis on their characteristics

Source: Authors' own research.

The most significant factor influencing the response is posts containing a face, which generate considerable interest in the form of comments. In these visual presentations, Paige Spiranac is captured, especially in conjunction with her striking bust. This remarkable finding confirms the criticism made by ESPN sports commentator Sarah Spain. Spain claimed that the deciding factor for Spiranac's inclusion on the cover of *Golf Digest* (Myers, 2016) was solely her physical appearance and style of dress. Interestingly, *Golf Digest*, which has a publication history of nearly seven decades, has only depicted 23 women on its cover, and only eleven of them were professional golfers, and Paige Spiranac was not one of them. Although Spiranac has been criticized for sexualizing women's golf (Gregg, 2021; Kavanagh, 2019), paradoxically, this criticism has contributed to a significant increase in her followers on the Instagram platform, as we have demonstrated within this study.

The primary mission of the Golf Association is to actively promote the development of golf (Kitching, 2022), to bring it closer to the wider public and to systematically confront existing prejudices. One effective tool to present the attractiveness of golf among individuals is the use of social media. In order to achieve this purpose, a dedicated social media platform was created which, through the person of the President of the Slovak Ladies Golf Association, maps the life of a professional golfer in the Slovak context. During the calendar year 2022, a study was conducted to analyse the impact of various factors on the level of interactions and impressions generated by the 139 posts in the said profile.

Table 3: Effect of individual determinants, namely photographs, face posts, golf-themed posts, and group photographs, on the quantitative indicator of positive response in the form of likes

	Coefficient	Std. Error	t-ratio	p-value	
const	68,78	5,41	12,71	<0,0001	***
Photo	-18,24	3,99	-4,561	<0,0001	***
Face	13,71	2,94	4,650	<0,0001	***
Golf	2,82	4,01	0,7029	0,4832	
Group	-7,31	3,49	-2,092	0,0381	**
R-squared	0,205477		Adjusted R-squared	0,174114	
F(6, 152)	6,551624		P-value(F)	3,59e-06	

Source: Authors' own research.

$$\hat{y}_i = 68,78 - 18,24x_1 + 13,71x_2 + 2,82x_3 - 7,31x_5 \quad (2)$$

Trend prediction: if the president posts a group photo from a golf setting with a strong focus on faces, we expect it to get 59 likes. In the case of a post in the form of a video where the focus is

on the face and at the same time a home practice of golf is practiced, we expect to get 85 likes. We have identified the optimal combination of factors that will yield the highest interaction rate.

The regression coefficient for the overall model, taking into account the influence of all aspects evaluated, reaches statistical significance, indicating that the combination of individual factors influences the total number of likes. However, a closer look at the individual factors reveals that the most significant impact on feedback comes from making the right decisions regarding the form of the post, specifically in the form of a photo or video. Another important aspect is the capture of the character or selfie. Photos in which other people are not visible equally influence the number of likes. Conversely, posts from vacations or golf events do not play a significant role in fans' decision to award a like. Although the regression model with the aforementioned independent variables can only explain 20.5% of the variability in the total number of likes, most of this variability is driven by factors not included in the regression model as well as random effects.

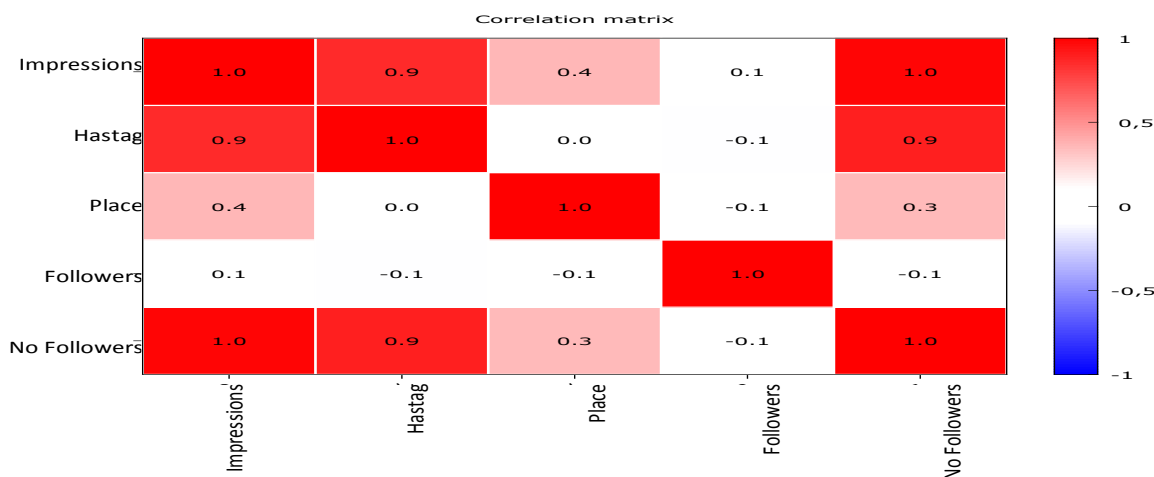


Figure 4. Correlation matrix

Source: Authors' own research.

According to the correlation matrix, it is evident that correctly chosen hashtags have a significant impact on the total number of impressions (Giannoulakis, 2022; Ichau, 2019; Rathnayake, 2022), as opposed to indicating the geographic location where the post was created. None of the factors affect the interactions of existing observers. However, interactions with people who have not yet followed the profile significantly affect overall account impressions. These interactions are thus influenced by appropriate hashtag selection and, to a minimal extent, location tagging.

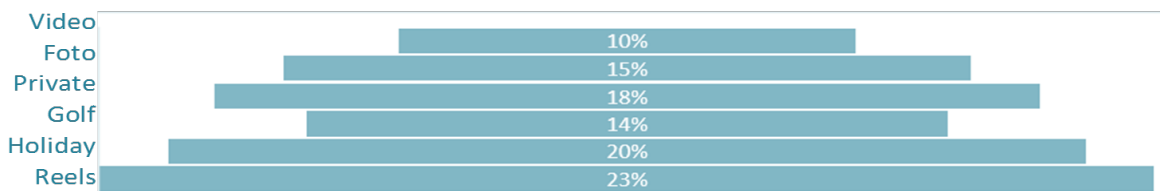


Figure 5. Activity structure on the user profile

Source: Authors' own research.

The highest interactivity on the user profile is generated by audiovisual media, which reaches up to 10 thousand views. Photos and videos from the golf environment presenting

interesting moments also enjoyed significant interest. Conversely, long golf videos showed the lowest attractiveness for viewers.

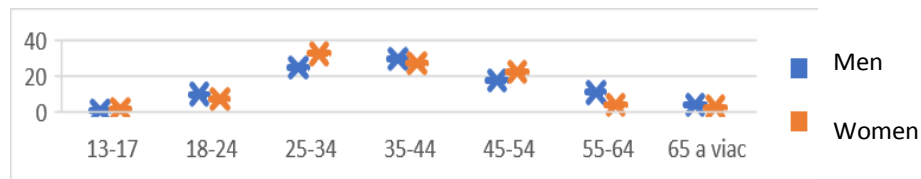


Figure 6. Demographic structure of observers

Source: Authors' own research.

The demographic composition of the profile's audience is heavily weighted in favour of men, who make up 75% of the viewer base. There is minimal interest from minors and people of retirement age. Males aged 35-44 and females between 25-34 represent the largest age group surveyed.

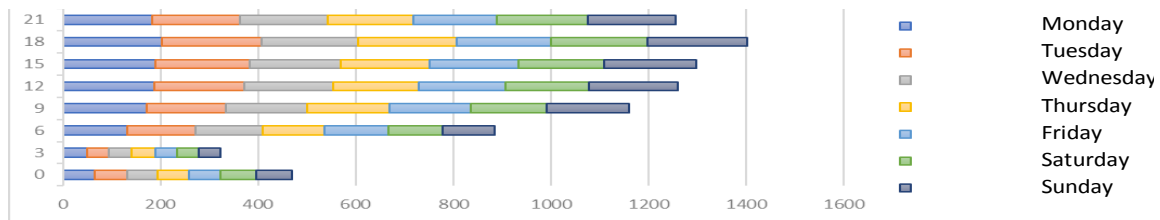


Figure 7. Demographic structure of observers

Source: Authors' own research.

We do not observe significant variation among the posts that generate the highest viewership in the context of days. We observe that this profile achieves the highest frequency of activity on Mondays, with the lowest viewership on Sundays. Analyzing the temporal component of attention (Wahid, 2020), we identify the lowest activity in the period from midnight to 6 am, with the peak of activity observed in the time span from 6 pm to 9 pm. An optimized time for post publication would appear to be around 6 pm on Sundays, but also on Mondays and Tuesdays in the same timeframe. Conversely, the early morning hours of Saturday could be considered the least appropriate time to publish content.

Conclusion

Social media is an effective tool for marketing communication with the potential to reach a wide audience. By systematically choosing a strategy for publishing posts on the Instagram platform, we can target the perception of a sporting discipline such as golf. In order to identify the posts with the most significant feedback, expressed in number of likes, we conducted an analysis of three profiles of female golfers during 2022.

In the regression model analysis, we identified a significant influence of professional golfer Nelly Korda on the social network Instagram. Each of her posts demonstrates some degree of success, with video format outperforming content in the form of photos. Personal moments, especially those that reveal aspects of her private life, generate increased attention. Despite successful contributions, such as winning an Olympic gold medal, her most striking photographs do not achieve even half the success of Paige Spiranac's standard photographs, even though they are three times more successful.

Spiranac, although she has not achieved golf performances comparable to Korda, has dominated significantly on social media. In the case of this controversial golf promotion with erotic overtones, it appears to be more effective compared to winning an Olympic gold medal. Despite the assumption that golf posts should attract followers, private photos of her figure get the highest number of likes. Interactions focused on photos of her face and cleavage suggest that her profile attracts a predominantly male audience and young female golfers who are changing their perspective on golf as a result of her influence.

Golf is not as popular in Slovakia as it is in the United States and is perceived as a sport reserved for more financially secure individuals. For this reason, the president of the Slovak Ladies Golf Association decided to promote golf to the general public through the Instagram platform. The results indicate that the profile is in line with expectations, with golf videos generating the most feedback in the form of likes. To make individual Instagram posts even more effective, it is crucial to choose hashtags appropriately and optimally time their publication. A deeper demographic analysis reveals that posts successfully engage a predominantly male audience of followers. This testimony confirms that the profile effectively ensembled new young female golfers, which was equally confirmed in the analysis.

In conclusion, each of the three profiles on the Instagram platform is effectively fulfilling its role in introducing the golf industry to the public. While one profile attracts attention through sporting feats, the other places more emphasis on the aesthetic presentation of the female body. A common feature, which also confirms the influence of artificial intelligence, is that the popularity of posts is higher when there is a more body-revealing depiction of the female golfer. Importantly, each fan finds a favourite profile to respond to, thus contributing to the development of the golf community.

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