



Influencer marketing: affiliation, credibility and brand control

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Abstract. The use of social media, such as Instagram to market and sell products and services is growing. Businesses can communicate with consumers more openly and interactively when they use social media influencers. Currently, an increasing number of influencers are purchasing fake followers to boost their traffic and exposure on social media, causing consumer suspicion and resistance, which gradually makes brands pay more attention to brand marketing control. Thus, this paper discusses the affiliation among influencers, potential consumers and brands, as well as influencer reliability and brand management. It is found that the cumulative number of influencer postings may have an inverse effect on marketing performance and that the number of posts reflects the level of brand-influencer correlation, suggesting that brand credibility may be negatively affected by excessive correlation. It also showed that, amongst influencers and followers, the influence of likes data on engagement rate varied over periods, influencing influencer reliability and even brand credibility. It can be useful for businesses to regularly modify their brand marketing techniques or influencers they work with.

Keywords: Influencer marketing; Instagram; affiliation; engagement rate; word-of-mouth; credibility; marketing strategy; brand management

1 Introduction

In the age of rapid technological advancements, an increasing number of businesses are coming to the realization that social media has a powerful impact on lifestyles and are making use of it to influence their purchasing intention via social networking sites. As a result, one of the most fruitful and profitable ways for brands to advertise themselves is to engage in online marketing. The relationship between a company and its customers becomes more affordable and enjoyable for both parties ^[29] (Oliveira et al, 2020). For example, online advertising and service improvements are accomplished through the use of social networks in social media marketing ^[18] (Kelly et al, 2010).

Recent trends in social media marketing have focused on influencers. Influencers' opinions are highly regarded since they have a direct impact on their followers. When an individual follows a social media posting. Consumers are influenced by the opinion of influencers when they purchase an advertised product or service ^[35] (Saito et al,

2015). With COVID-19 on the rise and people less likely to venture outdoors, it is challenging to sustain traditional marketing methods. Traditional marketers and businesses have been compelled to adopt the emerging trend in response to the epidemic, and the usage of influencers in marketing has risen to unprecedented heights^[14] (Francisco et al, 2021).

Brands are increasingly shifting their focus away from well-known celebrities and toward new forms of influencers as part of their marketing plans^[17] (Jin et al, 2019). Popular Instagram bloggers have an excellent sense of fashion and lifestyle, allowing them to profit from their beauty sense and appearance. Influencers who possess a relatively high level of awareness and utilize it for social influence and monetization are commonly referred to as micro-celebrities. Influencers who live lavish lifestyles and present themselves in a manner that resembles an image of a premium brand will be perceived as more authentic on Instagram^[22] (Lee & Watkins, 2016). Consumers form favorable opinions about featured businesses when they see Instagram influencers with expensive products. Consumers identify more strongly with influencers when they identify with them as individuals^[21] (Law & Braun, 2000). Conversely, traditional celebrity endorsements are not necessarily emotional commitments to the brand, but rather, are economic transactions. The influence of Instagram celebrity brand posts has therefore led to consumers perceiving the source as more trustworthy than traditional social media posts by celebrity brands.

The practice of influencer endorsement pertains to the dissemination and publishing of content that is supported by a brand or corporation. Influencers are paid to endorse products and brands and promote them on social media. Through this approach, adherents establish an affiliation between the brand and influencers, ultimately conveying the influencers' viewpoint of the brand or merchandise being endorsed^[24] (Lim et al, 2017).

It has been suggested by previous studies that fake followers can reduce confidence in a community^[10] (Costello & Biondi, 2020). Advertisers will pay popular social media users (influencers) in exchange for their brand endorsement. When an influencer can enhance the number of followers she publicly displays by buying fake followers, advertisers pay more than the influencer's external options and also need to tolerate high degrees of fakery to hire them. According to an influencer marketing agency Sway Ops, the overall worth of fraudulent influencer activity is around 1 billion dollars^[30] (Pathak, 2017). Cases such as these have, to some extent, contributed to the reduction in the credibility among followers towards influencers and brands. There has been a growing emphasis on brand control in marketing. This is precisely why this paper explores topics such as affiliation and credibility.

Previous studies have identified several factors that significantly impact the purchasing intentions of platform users, such as influencer credibility, follower count, professionalism, and the loyalty and trust of followers^[23] (Lee & Kim, 2020). As the number of followers grows, the source becomes more credible and attractive, and it becomes easier for the buyer to make a purchase^[40] (Weismueller et al, 2020). In Instagram posts featuring highly credible brands, messages are more credible, attitudes toward advertising are more positive, purchase intent is higher, and eWOM intention is higher.

Moderating the role of trust is significant, and it is imperative for brands to be cognizant of enhancing credibility while implementing their marketing strategies.

Also, previous research has indicated that the engagement rate is a significant metric for evaluating credibility ^[29] (Oliveira et al, 2020). As a measure of how engaged followers are with digital influencers, engagement rates are calculated. By aligning with a brand, influencers can gain valuable insights into how the brand's products complement their own, enhancing their credibility as information sources. Consequently, brands can reap the benefits of good word-of-mouth and marketing results ^[11] (De Cicco et al, 2021).

For further analysis and discussion, we scoured the Kaggle platform for relevant useful information and collected it. Kaggle provides free use of GPUs along with a trove of publicly available data and source code. Within Kaggle, we will find the necessary code and data for our data science projects. Take advantage of the over 50,000 datasets and 400,000 notebooks available online to speed up our analysis. The Kaggle platform offers information on the top 200 Instagram influencers by their number of followers in 2022. It is illustrated by the dataset owner that the influencer score is calculated on the basis of mentions, importance and popularity.

This paper investigates the correlation between post frequency and engagement, along with the impact of average likes and the number of likes on new posts through linear regression analysis. An analysis of the correlations revealed that engagement rates declined as the number of posts increased, and the average number of likes correlated positively with new post engagement rates. However, engagement was stronger when the average number of likes was increased rather than when the average number of new posts was increased. In addition, the former adjusted fit was less compromised in relation to its quality of fit than the latter.

With this research, we aim to make three contributions. Firstly, we analyze the factors of new digital marketing that may have an effect on the outcomes of marketing campaigns. Secondly, we examine the impact the volume of posts has on marketing results, which enables us to assist companies in minimizing the adverse effects of their excessive participation in promotions on influencers' respective marketing efforts. Thirdly, we discovered via the analysis of the data that companies should make it a priority to monitor the newest data available on the actions of influencers on social media. The paper, for example, examines the impact of average number of likes versus average number of likes on new posts on engagement rate.

In addition, further research could explore the content posted by influencers in light of the findings from this study. For example, it could examine how the amount of visual content (i.e., images versus videos) affects the likelihood of brand transactions for consumers. This could also help the influencers to have more significant results when promoting their products and services for the brands.

2 Literature Review

The thesis focuses on two main streams of literature: (1) the theoretical literature on affiliation (or communication) and persuasion; and (2) the interplay of engagement and

credibility and their mutual impact on brand marketing management. Both of these sub-topics are discussed in detail throughout this paper.

“Influencer marketing” is essentially a way for businesses to promote their products via social media influencers ^[28] (Müller et al, 2018). It is pointed out that individuals with a large following on social media can act as experts and trendsetters in their particular fields of expertise. Through extensive networks, influencers are of particular interest to brands due to the potential for viral development of product endorsement. When promoting products, businesses should carefully choose KOLs who represent the greatest value. In this case, companies need to find an influencer whose social media presence matches the type of product or advertisement they intend to promote, and whose ability to persuade consumers is strong.

Influencer marketing seeks to spread recognition of products or services through a large network and people below ^[12] (De Veirman et al, 2017). As such, influencers serve as a reliable source of electronic word of mouth as they are experts and trendsetters in a particular niche ^[13] (Evans et al, 2017). The previous literature states that word-of-mouth, as long as it originates from a credible source, can influence customers' purchase intentions ^[1] (Babić Rosario et al., 2016). Under influencer marketing, in order to generate purchase intentions for endorsed product, consumers must perceive the influencers as credible. Credibility can be defined as what an influencer perceives to be a reliable, authoritative source of information based on previous studies ^[31] (Pavlou & Dimoka, 2006). Similarly, it has a proportionately substantial effect on marketing results since it impacts purchase intentions.

Among social media influencers are consumers as well as KOL. In this sense, the recommendation from influencers relates to the consumers' word-of-mouth. Most studies agree that sales are boosted by favorable customer reviews, while unfavorable reviews can have a detrimental effect (Rosario et al, 2016). Several companies strive to monitor and control WOM and social media activity because WOM is crucial to product acceptance. Empirical evidence suggests that opinion leader sales vary depending on several variables, including their loyalty to the product, the type of trial phase they are conducting ^[15] (Iyengar et al, 2011), and their relationship with the recipient ^[6] ^[34] (Chen et al, 2017; Proserpio & Zervas 2017). In a number of studies conducted in recent years, a direct re-reply to online consumer reviews has been demonstrated to be an effective method of managing word-of-mouth ^[7] ^[39] (Chevalier et al. 2018; Wang & Chaudhry 2018).

Given by Mayzlin et al. ^[27] (2014), word-of-mouth marketing can also be utilized by businesses by providing positive comments as well as negative ones concerning their competitors, which is also known as 'promotional chatter'. Researchers found that consumers were skeptical about online recommendations, and they inferred that false word-of-mouth was stable. It is possible, however, for word-of-mouth to influence sales, provided there are enough authentic reviews and it is not too inexpensive to fake. Besides, Pei and Mayzlin's paper covers the manipulation of online recommendations by companies ^[32] (Pei & Mayzlin, 2022). In terms of results, the involvement of the company diminishes the persuasiveness of recommendations. The literature about consumer behavior suggests that customers tend to be skeptical of persuasive information ^[4] (Campbell et al, 2013).

Under the study of influencer marketing by April Kemp^[19] (Kemp A. et al, 2019), brands are aligned with social media entities' preferences, raised awareness among their followers, and inspired them to take action. In such a manner, both micro-influencers and macro-influencers can assist marketers in enhancing marketing metrics such as brand awareness, loyalty, and engagement. In some instances, they can even affect consumer purchasing behavior. The micro-influencer market is adapted for businesses with limited marketing budgets or those attempting to reach smaller groups of audiences, such as a certain geographical area. Due to their suitability for businesses with more marketing dollars and who seek to reach a broader, more diverse audience, social media marketing is more effective in these types of businesses. During the course of the investigation, the authors proposed the following formula for engagement rate (sometimes referred to as influence level):

$$\text{Engagement rate} = \text{Total engagement} / \text{Number of followers} / \text{Number of posts} \times 100$$

$$\text{Total engagement} = \text{Sum of all comments and likes}$$

Brown and Hayes^[3] (2008) define influencer marketing as a new form of digital communication that aids brands in achieving their marketing objectives. As a general advertising objective, influencing brand attitudes is important; however, more defined and operational objectives should be set. Social media can be beneficial for brands in general^[2] (Bakker D., 2018). According to Tuten and Solomon, brands are able to engage consumers, improve their reputation and image, and drive people to offline brand locations all through social media^[38] (Tuten & Solomon, 2014). Consequently, when it comes to modern online marketing, social media platforms offer more visible data and greater insight into the interactivity of channels. Among the observed metrics, likes and comments are obvious indicators seen by any user on social media. Likes and engagement rates are utilized by this paper to better discuss the main opinion.

3 About Data

The study used data from Kaggle.com, a website for data science. The dataset made available by the Kaggle platform is a collection of information about the top 200 Instagram influencers based on the number of their followers. The dataset owner (SJ from Toronto, Ontario, Canada) stated that the information was collected from the website "socialbook.io". Essentially, the request was sent to the website and then organized in a CSV file, after which it was wrangled and sanitized for relevance.

With SocialBook, businesses can create effective marketing campaigns and track payments for businesses of all sizes. It includes an API that lets brands integrate the application with multiple third-party platforms, allowing for the transfer of data between systems. It helps marketing agencies gain insight into the performance of campaigns and receive access to influencers' information regarding their followers, previous works, and engagement rates.

Instagram, a social media application, is heavily utilized to influence people (the users' followers) in a specific manner regarding a particular issue, which can impact

the order in some ways. Besides, brands commonly communicate marketing messages to Instagram followers via influencers since Instagram has the most followers [23] (Lee & Kim, 2020). For my discussion, this dataset allows me to observe influencers' behavior with basic information and performance with respect to a variety of marketing metrics.

Detailed information on the top 10 groups in this dataset is attached below:

Table 1. Partial Presentation of Information from the Dataset

rank	channel_info	influence_score	posts	followers	avg_likes	60_day_eng_rate	new_post_avg_like	total_likes	country
1	cristiano	92	3300	475800000	8700000	1.39%	6500	28710000000	Spain
2	kyliejenner	91	6900	366200000	8300000	1.62%	5900	57270000000	U.S.
3	leomessi	90	890	357300000	6800000	1.24%	44000	60520000000	
4	selenagomez	93	1800	342700000	6200000	0.97%	3300	11160000000	U.S.
5	selenagomez	91	6800	334100000	1900000	0.20%	665.3	12920000000	U.S.
6	kimkardashian	91	5600	329200000	3500000	0.88%	2900	19600000000	U.S.
7	arianagrande	92	5000	327700000	3700000	1.20%	3900	18500000000	U.S.
8	beyonce	92	2000	272800000	3600000	0.76%	2000	72000000000	U.S.
9	khloekardashian	89	4100	268300000	2400000	0.35%	926.9	98400000000	U.S.
10	justinbieber	91	7400	254500000	1900000	0.59%	1500	140600000000	Canada

In Table 1, basically there are 10 attributes. It has been arranged according to the classification determined by the number of “followers”.

rank: The number of followers of an influencer determines their rank.

channel_info: Identify the Instagrammer by their username.

influence_score: An indicator of how influential users are. Popularity, importance, and mentions are considered when calculating it.

posts: Posts they have made up to this point (updated 9 months ago).

followers: Amount of followers a user has.

avg_likes: Insights into Instagrammers' favorite posts (total likes divided by total posts).

60_day_eng_rate: Last 60 days' engagement rate of Instagrammer as a fraction of engagement they have done so far (updated 9 months ago).

new_post_avg_like: New post likes on average.

total likes: Amount of likes a user has gotten on their posts.

country: Origin country or region of the user.

4 Results

Numerous variables in the dataset are expressed as numbers, including followers, post-ings, etc. As such, their operationalization is relatively simple. Followers of an influ-encer are calculated by counting the number of Instagram users who follow them. An influencer’s Instagram activity determines the volume of content they produce. Notice-ably, the number of Instagram posts does not directly correlate with the amount of con-tent that an influencer produces. Keeping their profile up requires some influencers to delete posts that do not generate sufficient positive engagement.

The study employed an OLS regression model to analyse and discuss the variables. Specifically, we conducted a multiple regression analysis with the total number of likes as the dependent variable, and influence score, number of posts, number of followers,

average number of likes, 60-day engagement rate, and average number of likes on new posts as independent variables. The results are as follows:

Table 2. Coefficient ^a

Model	Non-std. coefficients		Std. coeffi-	t	p
	B	Std. error	cients Beta		
1 (Intercept)	-717185065	2469275094		-.290	.772
influence_score	-2246603.486	31389714.35	-.004	-.072	.943
posts	450085.315	80403.073	.282	5.598	.000
followers	19.682	6.018	.261	3.271	.001
avg_likes	543.890	229.121	.215	2.374	.019
60_day_eng_rate	-1245277542	239606934.8	-.746	-5.197	.000
new_post_avg_likes	2375437.162	485094.964	.795	4.897	.000

a: Dependent variable: total likes

It was found in Table 2 that the significance value of the independent variable “influence score” > 0.5 was not significant. We removed the independent variable “influence score” and created a new regression equation, i.e. multiple regression with total likes as the dependent variable and number of posts, number of followers, average likes, engagement rate over 60 days and average likes on new posts as the independent variables, as shown in the following table:

Table 3. Model Summary

Model	R	R ²	Adjusted R ²	Estimated std. error	dw
1	.770 ^a	.594	.583	3583111243	2.316

a: Predicted variables: (constant), average number of likes on new posts, number of posts, number of followers, average number of likes, 60-day engagement rate

b: Dependent variable: number of total likes

Table 4. ANOVA ^a (Analysis of Variance)

Model		Square sum	Degrees of freedom (df)	Mean square	F	significance
1	Regression	3.637E+21	5	7.273E+20	56.650	.000 ^b
	Residual	2.491E+21	194	1.284E+19		
	Total	6.127E+21	199			

a. Predicted variables: (constant), average number of likes on new posts, number of posts, number of followers, average number of likes, 60-day engagement rate

b. Dependent variable: number of total likes

As can be seen from Model Summary (Table 3), R² is 0.594, which is generally required to be above 0.3 in multiple linear regression, with 0.5 being appropriate and 0.6 or above being very appropriate. The value of dw (Durbin-Watson) is close to 2, indicating that the residual terms are not correlated with each other (residuals are generally

uncorrelated variables). Inside the table of ANOVA (Table 4), the significance is less than 0.01, indicating that the regression equation is significant.

Table 5. Coefficient ^b

Model	Non-std. coefficients		Std. coefficients	t	p
	B	Std. error	Beta		
1 (Intercept)	-889057649.629	573429966.846		-	.123
posts	449344.650	79529.598	.281	5.650	.000
followers	19.548	5.707	.260	3.426	.001
avg_likes	543.994	228.528	.215	2.380	.018
60_day_eng_rate	-1247079122.378	237669293.208	-.747	-	.000
				5.247	
new_post_avg_likes	2378954.734	481359.788	.797	4.942	.000

a: Dependent variable: total likes

As we can see from Table 5, all independent variables are significant (< 0.05). thus, it is enough to obtain standard coefficients. Then the collated correlation results and regression results were obtained as follows:

Table 6. Correlation

	influ- ence_score	posts	followers	avg_likes	60_day_e ng_rate	new_post_a vg_likes	to- tal like s
Influence_score							
posts	.160*						
followers	.368**	.060					
avg_likes	.051	-.343**	.349**				
60_day_eng_rate	-.082	-.320**	-.099	.708**		(.867**)	
new_post_avg_likes	.036	-.285**	.303**	.847**	.867**		
total likes	.238**	.235**	.668**	.355**	-.020	.330**	

*. P<0.05 (two-tailed), significant correlation.

** . P<0.01 (two-tailed), significant correlation.

Table 7. Regression

Independent vari- ables	R ²	Durbin- Watson (dw)	B	t	p
posts			0.281	5.650	0.000
followers			0.260	3.426	0.001
avg_likes	0.594	2.316	0.215	2.380	0.018
60_day_eng_rate			-0.747	-5.247	0.000
new_post_avg_likes			0.797	4.942	0.000

Note: R^2 indicates the degree of explanation of the dependent variable by the independent variables.

Establish the regression equation:

Total likes = $0.281 \times$ number of posts + $0.260 \times$ number of followers + $0.215 \times$ average number of likes – $0.747 \times$ 60-day engagement rate + $0.797 \times$ average number of likes on new posts

As a result of Table 6, (if engagement rate is the dependent variable) the number of followers and 60-day engagement rate also have a negative correlation; secondly, the number of posts and 60-day engagement rate are negatively related; and thirdly, the average number of likes and the average number of likes on new posts have both a negative relationship with 60-day engagement rate. But the correlation coefficient between the former and the 60-day engagement rate (R_1) is lower than the correlation coefficient between the latter and the 60-day engagement rate (R_2).

We can conclude several results from this process. Firstly, it depends on how many posts you have, how many followers you have, the average number of likes you have, the average engagement rate over 60 days, and how many likes you receive when you post a new post. The effect of engagement on the total likes is negative. All other independent variables correlate positively with the dependent variable. Secondly, there is a negative correlation between the number of followers and engagement, indicating that influencers with a large number of followers received less engagement from their followers. Thirdly, engagement is negatively correlated with the volume of influencer postings on Instagram, which means that quality content is less likely to be shared by influencers who post a lot. Finally, the correlation coefficient between average likes and engagement ($R_1=0.708$) is less than the correlation coefficient between average likes on new posts and engagement ($R_2=0.867$). Both are greater than 0. So, $R_1^2 < R_2^2$. As stated in the note of Table 7, R^2 represents the extent to which the independent variable explains the dependent variable. Thus, the average likes on new posts can better explain engagement based on the positive correlation.

5 Discussions and conclusions

In today's digital marketing landscape, it can be challenging to capture customers' attention amidst the sea of advertisements. As such, businesses must think creatively to connect with their audience through social media. One modern approach gaining traction is influencer marketing, which functions as a form of celebrity endorsement in the digital age. A business can reach a larger audience, build stronger relationships with potential customers, and increase customer loyalty by leveraging social media influencers. Phua^[33] (2017) attributes its growing popularity to its ability to reach elusive online consumers. Lou^{[25][26]} (2019) reports that influencer marketing can help brands build strong relationships with customers through the trust and psychological bonds gained by influencers.

We created the corresponding regression equation for the regression analysis in the previous section in which total likes were used as a dependent variable, but in the

introduction, we discuss a phenomenon -- shady businesses, known as 'click farms,' provide influencers with fake followers. After this deception is revealed, the trust of followers in the influencer and brand is greatly diminished^[30] (Pathak, 2017). A positive correlation was found between followers, posts, likes, average likes and average likes on new posts with total likes. Given the aforementioned illusion, it remains unclear whether this effect can have any effect on marketing.

Instead, the study focuses on identifying relationships between several variables mentioned and engagement rate using regression analysis. And there are abundant previous references stating that engagement and credibility are related^[16]^[19] (Wonseok (Eric) Jang et al, 2021; April Kemp, 2019).

Firstly, it is found that the number of followers and engagement are negatively correlated. There has been evidence that influencer-follower relationships are influenced by follower identification with the influencer^[36] (Schouten et al, 2020). Influencer engagement declines as followers identify more with traditional celebrities, causing them to lose identification with influencers. As given by past research findings, followers engage favorably when really identifying with the influencer^[20] (Ladhari et al, 2020).

Secondly, it is found that the volume of posts is adversely connected to engagement. As social media content is created by creative people, posting often is likely to be detrimental to creativity and originality^[9] (Colliander & Marder, 2018). In addition, it is worth noting that Instagram users are constantly inundated with a high volume of posts on their social media feeds. Therefore, the importance of originality cannot be overstated, as it plays a crucial role in captivating followers' attention and eliciting engagement from them^[5] (Casaló et al, 2018).

Finally, the average likes for different types of posts have varying degrees of influence on engagement rate. The average number of likes on new posts is likely to better explain or influence the engagement rate, possibly because influencers remove or re-edit previous posts^[37] (Tafesse & Wood et al, 2021) to affect the average likes or their image.

Then we will address and expand the discussion about the second point of view. In the literature review of the paper, we mentioned that company involvement weakened the persuasiveness of recommendations^[32] (Pei & Mayzlin, 2022). In consumer behavior research, it has been found that consumers tend to be skeptical of persuasive messages. Campbell et al. (2013)^[4] provide examples of this. Thus, cooperating with a large number of influencers for massive product placement may experience a reduction in creativity and influence degree. The content might lose its originality when numerous influencers post the same product or when an influencer posts a specific product repeatedly. Recent research by Tafesse and Wood^[37] (2021) has demonstrated that the number of posts alone cannot be considered an accurate or comprehensive measure of content production.

Comments generally fall into two categories -- affiliation and independence. Pei and Mayzlin's study mentions a L'Occitane bath oil video to compare the effectiveness due to these two relationships.^[32] Pei & Mayzlin (2022) argue that positive comments from independent influencers are more credible than those from company-connected influencers.^[32]

This paper holds the opinion that the affiliation established between the company and the influencer affects the influencer's posting. In terms of the number of posts, if a brand controls the posting volume or content, influencer marketing will lose its essential attribute – the trust that the originality of posts brings to the public. Then the public may regard such dubious content as traditional advertising and ignore them. The effectiveness will be the same for both high- and low-credibility influencers ^[23] (Susanna Lee & Eunice Kim, 2020).

Whether or not to disclose such affiliations depends on whether consumers are able to perceive any impact on the endorsement resulting from the affiliation. If consumers cannot completely observe it, the influencer must disclose the presence ^[32] (Pei & Mayzlin, 2022). As previously stated, influencer marketing unravels when no disclosures are required. But under a regime of complete disclosure, businesses can maximize profits through partial association with influencers. Under a regime of partial disclosure, the credibility of comments is preserved by business forgoing affiliation. Because in areas where persuasiveness is crucial, affiliation benefits the businesses with detriment to consumers. As such, under the partial disclosure regime, consumer welfare becomes higher, and brands benefit more from a more stringent disclosure ^[32] (Pei & Mayzlin, 2022).

6 Implications

Brands and Instagram influencers interested in collaborating can gain several valuable insights from these findings.

Follower count does not necessarily indicate a greater engagement rate. In the study, there is a negative correlation between followers and engagement rates, demonstrating that such efforts are purely measurement-based. Secondly, the findings also refer to influencer posting. The volume of posts is not a reliable indicator of the quality of their content and has a negative effect on engagement. Therefore, influencers should prioritize quality (e.g. originality, creativity, etc.) rather than quantity. The negative correlation may also be due to the fact that influencers do not allocate sufficient resources to consistently post creative content when they produce too ^[37] (Tafesse & Wood et al, 2021).

The research also has implications for brands. Many times, organizations place too much emphasis on follower numbers when evaluating influencers. Choosing influencers solely on their follower numbers, however, can be counterproductive, as this paper found. As a result, brands are advised to evaluate partnership opportunities based on a combination of follower volume, engagement rate and content quality. In addition, the preference of influencers is an important element ^[37] (Tafesse & Wood et al, 2021). Brands must consider their audience and potential consumers and ensure that influencers are aligned with brands' image (Childers et al, 2019). Brands can browse the influencers' current and past sponsorship to determine how well influencers align with the brand, as well as to check the content, consistency, and engagement. This research, however, found that it would be more appropriate to consider posts from influencers

that reflect the message -- that the average number of likes on new posts explains engagement more accurately.

Brands also need to consider their own level of involvement in influencer sponsorship. When consumers' prior beliefs are relatively high, they tacitly tend to make a purchase ^[32] (Pei & Mayzlin, 2022). From the perspective of a company, the persuasiveness of positive comments is irrelevant, but the company would benefit from preventing negative reviews. Therefore, it is preferable for brands to cooperate with appropriate influencers to maximize brand awareness and avoid negative reviews. Consumers with relatively low prior beliefs are less likely to purchase a product when they see a positive review, but they may be convinced by a positive review if it is reviewed positively ^[32] (Pei & Mayzlin, 2022). In order to encourage consumers to make, brands may incorporate some positive comments that are not exclusively associated with the influencer.

7 Limitations and Future Research

Ultimately, future research could explore a variety of avenues in light of the limitations of the present study. Firstly, the subjects of this study lack focus on specific areas of interest (e.g. delicious food, fashion, etc.). Therefore, it is possible that the results of this research may not be generalizable to the more refined market. Future studies that require a specific region or area need to make sample segmentation. Secondly, the variables used in this study only addressed fundamental metrics and did not capture dynamic content or specific engagement strategies. Factors that account for content creation rate, deleted posts, and content type were not taken into account, which could produce more reliable metrics. Future research should investigate what factors such as facial expression recognition in photos and videos affect influencer marketing. Additionally, future studies could explore whether photos or videos are more effective and popular with the public. Thirdly, this study discusses the impact of affiliation between influencers and brands on marketing outcomes. Future research could examine the dynamic relationship among brands, consumers and influencers. Finally, it is worth noting that the range of potential consumers targeted is limited. Millennials make up the majority of Instagram users ^[8] (Clement et al, 2019), which can make it difficult for brands to target older or younger demographics. Thus, future research should consider exploring different age groups to establish a broader understanding of Instagram's user base.

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