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Content Analysis of Athletic Brand Posts on Instagram

PALLAVI KHURANA
University at Albany, SUNY, pkhurana@albany.edu

Thora Knight
University at Albany, SUNY, tknight@albany.edu

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Pallavi Khurana, *University at Albany- SUNY*
Thora Knight, *University at Albany- SUNY*

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Abstract

Social media has enabled brands to share marketing content and interact with their customers. This research aims to understand the online brand communication strategy by analyzing the posts of fitness brands Nike and Lululemon on Instagram. Through content analysis, both the visual and textual content of an overall 300 brand posts were be examined. The concepts used for analysis include message appeals, photo characteristics, and engagement. The study provides insights into the message characteristics, and persuasive appeal strategies fitness brands use to engage with customers. The results indicate that there are similarities as well as differences in how the athletic brands position themselves to their followers. Brands are more likely to foster engagement when ethical appeals are present in their posts as opposed to emotional and rational appeals.

Key words: brand communication, engagement, Instagram, message appeals, message characteristics, social media, visual communication

Introduction

The expansion of social media has created a whole new world for organizations and brands, driving them to find new interactive and creative ways of reaching customers (Godey, Manthiou, Pederzoli, Rokka, Aiello, Donvito, & Singh, 2016). Social media is integral to forming relationships between brands and their customers and has encouraged brands to think about their marketing communication strategies (Paine, 2011; Pinto & Yagnik, 2017). According to a report by DEI Worldwide (2008), 70% of customers visited social media sites to seek information, while 49% of these customers made a buying decision based on the information they gathered through the social media websites. The report also found that 60% of customers are likely to use social media sites to pass on information received online, and 45% of customers who searched for information solely through social media websites

engaged in word-of-mouth. Additionally, the study noted that brands that combine social media features into their marketing mix have a higher chance of impacting customers' purchase decisions. With the increased use of social networking sites by adults and youngsters, social media has become essential for brands to engage and interact with customers. A survey by Pew Research (2019) indicated that 72% of U.S. adults use at least some form of social media site, 69% of adults use Facebook, and 37% of adults use Instagram. The report also noted that 67 % of American teenagers aged 18-24 years use Instagram.

Instagram as a platform is more visual than other popular social networking sites such as Twitter and Facebook, leading marketers to suggest that Instagram should be incorporated in their overall marketing strategies (Mottl, 2015). Instagram is a free picture and video sharing application (Baker & Walsh, 2018) that allows users to share and edit photos and connect with friends, family, or strangers across several social networks like Facebook and Twitter (Chen, 2018). Launched in October 2010, Instagram currently has more than one billion monthly active users (Statista, 2019). Since its inception, Instagram users have posted over 40 billion pictures on the platform, and it is known as the favorable marketing platform for teens, ahead of Facebook and Twitter (Adegbola, Gearhart, & Skarda-Mitchell, 2018). Instagram as a visual platform is used by organizations worldwide to tell the brand's story using real content and to build connections with the followers (Adegbola et al., 2018; Geurin-Eagleman & Burch 2016). Despite the increased usage of the platform, Instagram is underutilized for marketing because marketing professionals still have questions about how best to use it to communicate with followers (Adegbola et al., 2018). This problem persists because research assessing the characteristics of visual social media content is only now beginning to emerge (Adegbola et al., 2018).

This study aims to analyze both the textual and photo content of fitness brands to understand their communication strategy on Instagram. The paper proceeds as follow. In the first section, we survey the existing literature to understand (1) message appeals and visual characteristics used by brands on Instagram and (2) how brands use various social networking sites for advertising their products and building customer engagement. The following section of the study describes the research method, including a description of coding categories and variables. The next section presents the results of the study, where frequencies were calculated to assess the visual and textual characteristics present in the post. Independent samples t-test was undertaken to understand the brands' scores on each of the visual characteristics and to ascertain if any significant difference exists between Nike and Lululemon's use of message appeals. Regression analysis was conducted to examine the relationship between appeals, interactivity, and engagement. The study found certain similarities as well as differences in how the athletic brands use message characteristics in their brand posts and connect with their customers.

Background

It is apparent from the literature that social media studies have primarily employed content analysis to study visual and textual content in social media, finding the presence of several themes. These evolving themes include message appeals, message orientation, engagement, popularity, and photo content characteristics. Pinto and Yagnik (2017) examined how fitness tracker brands used Facebook to market their products, improve brand positioning, and target specific users. We used themes to identify message characteristics of the fitness tracker brand posts were popularity, user engagement with the marketing content, and message appeals used by brands. We used the following variables to analyze social media content: "timing (postdate and post time), popularity (number of likes), engagement (number of comments, shares, and hashtags), the format of the post (video, graphics, who and what was visually present in the post), and message appeal" (Pinto & Yagnik, 2016, p. 55). The study listed two types of message appeals- rational and emotional. The rational appeal is related to the "utilitarian or functional benefits of the product" (Pinto & Yagnik, 2017, p. 56). On the other hand, emotional appeal "stimulates consumers' emotional responses or feelings" (Pinto & Yagnik, 2017, p. 56).

In a study by Kusumasondjaja (2018), 43 top Indonesian brands were studied to understand the effectiveness of brand communication strategies on social networking sites, Facebook, Instagram, and Twitter. In that study, the author analyzed the brand posts in terms of message appeal, orientation, and customer responses. The brand messages were grouped based on informational or rational appeal and transformational or emotional appeal. According to the study, the informational or rational message offers customers factual and pertinent brand information explicitly and logically, which allows them to make buying decisions based on the claim of superior product features. Rational appeal mostly shows brand value, affordability, popularity, performance, convenience, health, and endurance of the brand. Emotional or transformational messages are focused on the intangible and objectively unverifiable attributes of the brand. The study further explained that transformational appeals in a brand post could be shown positively (e.g., happiness, warmth, pride, and passion) or negatively (e.g., fear, concern, and guilt).

In another study by Khanna (2016), the emotional and rational appeal of the most
frequently advertised products in India were examined. According Khanna, emotional appeal is aimed at a user's social or psychological needs. Meanwhile, a rational appeal is directed towards the product's value and features. Liu, Li, Ji, North, and Yang (2017) used informational and emotional appeals to study the message strategy of Fortune 500 companies. The study

indicated that informational/rational appeal is related to a product's quality, price, and performance. However, brands use emotional appeal in their messages to invoke feelings or emotions linked with the brand or product.

Other emerging Instagram-related studies utilized hashtags to study posts intended to inspire users towards a healthier lifestyle in a phenomenon known as *fitspiration* (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018). Instagram-related photo analysis has explored visual characteristics relating to the absence or presence of logos, whether images relate to elements of the brand, gender displays, number of people in the photos and photography styles (Adegbola et al., 2018; Tiggemann & Zaccardo, 2018; Anagnostopoulos et al., 2018; Smith & Sanderson, 2011). The context for these visual analyses spans social activism to commercial branding. Scholars have also examined social media posts of luxury brands to understand the effect of visual communication on consumer perceptions towards the brands (Lee, Hur, & Watkins, 2018).

Interactivity can be described "as the degree to which two or more communication parties can act on each other, on the communication medium and on the messages, and the degree to which such actions are synchronized" (Luarn, Lin, & Chiu, 2015, p. 3). For instance, brand pages on Facebook use several features such as text, links, "like," and "share" buttons to disseminate information and to act on contests, quizzes, and questions (Luarn et al., 2015; Vries et al., 2012). For Vries et al. (2012), brand posts features vary in the degree of interactivity, and a post with only text is by no means interactive. However, a brand post with a link to the website is considered to be more interactive. Interactivity in a post can be manipulated by changing the number of clickable links (Liu et al., 2017). For example, Sundar, Kalyanaraman, and Brown (2003) manipulated three levels of interactivity on a political candidate's website: low interactivity (no hyperlinks), moderate interactivity (one layer of related links), and high interactivity (two layers of associated links). The present study has measured interactivity in terms of the number of hashtags, tags, and hyperlinks present in the brand posts.

Research Questions

While several studies have examined the appeals and visual characteristics in advertising or social networking sites, there is a dearth of research in understanding the photo characteristics and message appeals of social media content posted by fitness brands. Existing research does not go far enough to capture the impact of persuasive appeals and interactivity of brand posts on user engagement. This study aims to integrate analysis of both the textual and photo content to produce a comprehensive view of fitness brand communication strategy on Instagram, especially in terms of a photo analysis. This study provides insights into how fitness marketers use Instagram to connect with followers. Moreover, the study will increase our understanding of

how visual content is used as well as our knowledge about the prevalence of persuasive appeal strategies in fitness brand messages on social media. More specifically, it examines posts issued by two leading brands in fitness apparel manufacturers, Nike and Lululemon, on their Instagram brand pages.

Lululemon is an athletic brand that designs and sells athletic apparel and accessories (MarketWatch, 2019). Lululemon currently has 3.2m Instagram followers, has 2,893 Instagram posts, and follows 179 users (Instagram, 2020). Like Lululemon, Nike is in the business of the development and sale of athletic footwear, apparel, and accessories (Marketwatch, 2019). Nike, at the time of this study, has 106m Instagram followers, 770 posts, and follows 53 users (Instagram, 2020). With its "just do it," slogan Nike, in the past, has been topping the charts and is consistently ranked among the top brands on Instagram (Forbes, 2014). One of Nike's most popular campaigns on Instagram was with Nike PHOTOiD, where the followers could design Nike shoe line and share their photos along with the post (Forbes, 2014).

As observed in the literature review above, there is limited research on the visual characteristics and persuasive appeals of athletic brand posts on Instagram. Therefore, to investigate how fitness brands' marketers use Instagram to connect with their customers and integrate interactive elements to increase user engagement, the following research questions were studied:

Research Question 1:
a) What are the characteristics of visual content posted by fitness brands on Instagram?
b) What are the characteristics of textual content posted by fitness brands on Instagram?
c) Which fitness brand does score higher on each of the visual characteristics?

Research Question 2: Is there any significant difference between Nike and Lululemon's use of emotional, rational, and ethical appeals?

Research Question 3: What persuasive appeals of the brands' posts are most likely to relate to followers' engagement?

Research Question 4: How do the interactive elements of the brand posts, such as the number of tags, hashtags, and links, relate to followers' engagement?

Research Methods

The aim of this study was to explore the ways in which fitness brands use Instagram to connect with customers. To accomplish this, we compared two leading fitness brands, Nike and Lululemon, and collected the brands' posts from the Instagram platform. The sample includes 150 posts for each brand resulting in a total of 300 cases. Each brand posts consist of the photo and

accompanying textual communication, and both were collected for analysis. We commenced data collection on March 1, 2020, and selected every consecutive single photo brand post in reverse chronological order. The sample consists of all single photo posts that Nike submitted to the Instagram platform between September 12, 2014, and February 26, 2020, and all the single photo posts that Lululemon submitted between February 17, 2018, and February 27, 2020. Brand posts with multiple photographs and videos were excluded. It is important to note that Lululemon posts more frequently from its primary Instagram account than Nike does. This difference in the frequency of posting to the selected brand pages explains the variation in the period reflected in the sample for the two brands.

Drawing from the literature, we developed a codebook. First, we independently reviewed the literature of a sample of eight studies (Adegbola et al., 2018; Geurin-Eagleman & Burch, 2016; Khanna, 2016; Pinto & Yagnik, 2017; Tiggemann & Zaccardo, 2018; Anagnostopoulos et al., 2018; Smith & Sanderson, 2011; Sundar et al., 2003) and composed a list of variables. Second, we discussed each variable and classified them into categories and sub-categories based on themes as well as definitions found in the reviewed studies. In the final stage, after consulting with an expert on media studies, we refined the codebook. The final codebook includes five broad categories, twelve sub-categories, and thirty-four variables. The broad categories are appeals, message orientation, photo content, interactivity, and popularity. The appeals category includes *emotional appeal*, *rational appeal*, and *ethical appeal*, and we coded the photo content and textual content simultaneously for that category. The message orientation category includes *task*, *non-task, fitspiration,* and *inspiration,* in which we coded only the textual component. The photo content category included thirteen variables summarized in Table 1. We focused only on the photo component of the post when coding in that category.

The interactivity category includes the *number of links, number of tags*, and *number of hashtags,* while the popularity category includes the *number of likes* and *number of comments*. Each variable was coded 1 for the presence of the variable or 0 for the absence of the variable except the interactivity and popularity variables. Table 1 summarizes the sub-categories with their respective variables. Definitions of each coded category are provided in Table 8. Most of the categories are nonexclusive except task/non-task, fitspiration/inspiration, domestic photograph/commercial photography and product/non-product. For the nonexclusive codes, a post could communicate all the variables within a sub-category. For example, if a post reflected happiness, sadness, fear, motivation, and courage, all five of these emotional appeals were coded as 1.

Table 1
Content analysis coding categories

Emotional	Rational	Ethical	Message Orientation	Action	Type of Shot	No. People in Photo	Gender	Vividness	Focus of Photo
Happiness	Performance	Logo/Slogan	Task	Fitness Activity	Domestic Photography	Solo	Male	High Velocity	Product
Sadness	Durability	Celebrity Endorsement	Non-Task		Commercial Photography	Duo	Female		Non-Product
Fear	Quality	Real People	Fitspiration			Group	Unsure		
Motivation	Price		Inspiration			None			
Courage									

We conducted inter-coder reliability on all the variables to ensure that the coding results are reliable and replicable. Two coders coded 1/3rd of all the posts to determine the inter-coder reliability. Most of the variables scored between 79% (for variables such as "motivation") and 98% ("sadness," "duo," and "none") of all the measured variables. Some variables scored low on Krippendorff's alpha when the data was mostly 0s or 1s in a particular category. Krippendorff's alpha is said to penalize for such skewness (Hagen, 2016). Gwet's AC1 corrects this issue (Hagen, 2016). After conducting Gwet's analysis, inter-coder reliability scores improved. A summary of the intercoder reliability scores for each variable is provided in Table 9.

Results

RQ1a asked about the characteristics of visual content posted by fitness brands on Instagram. To address this question, we calculated the frequencies for the appeals and photo content categories. Frequencies and all data analyses in this study were conducted using the SPSS 26.0 package. Table 2 summarizes the characteristics that are present in the appeals and photograph component of the brands' posts on Instagram. The results indicate that *ethical appeal* was the most dominant persuasive appeal and was reflected in 220 of the 300 (73%) posts. Among the three ethical appeals, the *logo/slogan* was more prevalent, followed by *real people.* The *celebrity endorsement* variable was present in 36% of the characteristics in the visual content.

In the emotional appeal category, the most dominant characteristics are *motivation* (45.7%), followed by *happiness* (24.70%). The emotional characteristics with the lowest score are *courage* and *sadness*. However, none of the brand posts depicted *fear* or *price*. The rational appeal was present in 43% of the posts with a performance at 26.70%, durability at 7.70%, and quality at 8.70%. In terms of the other characteristics, 65% of the posts featured domestic photography, 25% focused on product placement, and most of the posts contained people. Of the posts that featured people, women were present 52% of the time and men 44%. Gender identity was unclear in only 5%. In the posts where gender was unclear, the uncertainty arose because the photograph was taken at a distance or the people's identifiable features were obscured. Overall, vividness was lacking (6%), which indicates the posts were mostly neutral in nature and reminiscent of the types of photos that ordinary people post on Instagram. It is important to note that some categories such as type of shot, number of people in the photo, and gender does not add up to 100% because these codes are nonexclusive.

Table 2

Frequency and Percent of Visual Characteristics

Category	Visual Characteristics	Frequency	Percent %
Emotional Appeal	Happiness	74	24.70
	Sadness	23	7.70
	Motivation	137	45.70
	Fear	0	0
	Courage	19	6.30
Rational Appeal	Performance	80	26.70
	Durability	23	7.70
	Price	0	0
	Quality	26	8.70
Ethical Appeal	Logo/Slogan	220	73.30
	Celebrity Endorsement	109	36.30
	Real People	157	52.30
Action	Fitness Activity	152	50.7
Type of Shot	Domestic Photography	194	64.70
	Commercial Photography	77	25.70
Focus of Photograph	Product	75	25.0
	Non-product	205	68.3

Number of People in the Photograph	Solo	182	60.7
	Duo	29	9.7
	Group	73	24.3
	None	27	9.0
Gender	Male	132	44.0
	Female	157	52.3
	Unsure	15	5.0
Vividness	High Velocity	19	6.3

RQ1b asked about the characteristics of textual content posted by fitness brands on Instagram. Frequencies were generated for the message orientation categories and are summarized in Table 3. The results indicate athletic brand posts are somewhat more inspirational in nature and stimulate users to feel about the message conveyed in the post. Only 29% of the posts were task-oriented, meaning the post contained information specifically about the brands' products. This result indicates that fitness brands rarely (68%) include information that sells or promotes the brands' products on Instagram.

Table 3

Frequency and Percent of Textual Characteristics

Category	Textual Characteristics	Frequency	Percent %
Message Orientation	Task	88	29.3
	Non-task	205	68.3
	Fitspiration	113	37.7
	Inspiration	123	41.0

RQ1c asked which fitness brand scores higher on each of the visual characteristics? We used a two-tailed independent samples t-test at an alpha level of 0.05 to identify the differences in the means of each of the visual characteristics between the two brands. The t-test is a classic measure of means that is robust with "slight departures from normality" (García-Pérez, 2006, p.364). Table 4 shows the results of the independent sample t-test and indicates the value of the mean, standard deviation, t-statistic, and p-value for each of the coded categories for both brands. Table 1 also indicates the categories where there are significant differences between Nike and Lululemon, as well as the categories where there were no significant differences in the brand characteristics.

Table 4 shows Nike score higher in the following categories: logo/slogan $t(298) = 5.16$, $p < .005$), celebrity endorsement slogan $t(298) = 6.23$, $p < .005$) non-task slogan $t(298) = 9.83$, $p < .005$), inspiration $t(298) = 3.71$, $p < .005$), non-product slogan $t(298) = 9.82$, $p < .005$) solo $t(298) = 5.16$, $p <$

.005), male $t(298) = 2.58$, $p < .005$), and high velocity $t(298) = 3.12$, $p < .005$). These results suggest Nike used more celebrities in its Instagram posts than Lululemon. Nike posts are also more inspirational and are less likely to promote its product in photos and textual communications on Instagram than Lululemon. There was a significant difference in both how Nike markets its products on Instagram as well as how people are featured in the brand's posts. As compared to Lululemon, Nike
tend to include more men in its Instagram posts and tend to feature one person in its photo posts.

Table 4
Comparison of brand characteristics

	M(S.D.)			
Characteristic	Nike	Lululemon	t-value	p value
Happiness	.17(.37)	**.33**(.47)	-3.26	.001
Sadness	.01(.12)	**.14**(.35)	-4.23	.000
Fear	-	-	-	-
Motivation	.41(.49)	.51(.50)	-1.74	.083
Courage	.07(.25)	.06(.24)	.24	.813
Performance	.29(.45)	.25(.43)	.78	.435
Durability	.01(.08)	**.15**(.36)	-4.71	.000
Quality	.00(.00)	**.17**(.38)	-5.59	.000
Price	-	-	-	-
Logo/Slogan	**.86**(.35)	.61(.49)	5.16	.000
Celebrity Endorsement	**.53(**.50)	.20(.40)	6.23	.000
Real People	.41(.49)	**.63**(.48)	-3.90	.000
Task	.09(.28)	**.50**(.50)	-8.79	.000
Non-Task	**.91(**.28)	.45(.50)	9.82	.000
Fitspiration	.23(.42)	**.53**(.50)	-5.62	.000
Inspiration	**.51(**.50)	.31(.46)	3.71	.000
Fitness Activity	.51(.50)	.50(.50)	.23	.818
Domestic Photography	**.81(**.81)	.48(.48)	6.42	.000
Commercial Photography	.15(.36)	**.36**(.48)	-4.20	.000
Product	.09(.28)	**.41**(.49)	-7.03	.000
Non-Product	**.91(**.28)	.45(.50)	9.82	.000
Solo	**.75(**.44)	.47(.50)	5.16	.000
Duo	.07(.25)	.13(.33)	-1.76	.079
Group	.13(.33)	**.36**(.48)	-4.88	.000
None	.00(.00)	**.18**(.39)	-5.72	.000
Male	**.51**(.50)	.37(.48)	2.58	.010
Female	.46(.50)	**.59**(.49)	-2.21	.028
Unsure	.03(.18)	.07(.25)	-1324.00	.187
High Velocity	**.11**(.31)	.02(.14)	3.12	.002

Lululemon scored higher in the following: happiness: $t(298) = -3.26$, $p <$ .005), sadness $t(298) = -4.23$, $p < .005$) durability $t(298) = -4.71$, $p < .005$) quality $t(298) = -5.59$, $p < .005$) real people $t(298) = -3.90$, $p < .005$), fitspiration $t(298) = -5.62$, $p < .005$), commercial photography $t(298) = -4.20$, $p < .005$) group $t(298) = -4.88$, $p < .005$), none (no people) $t(298) = -5.72$, $p < .005$) and female (.59 versus $t(298) = -2.21$, $p < .005$). These results suggest although sadness is not very prevalent in the posts, sadness was significantly lower and contain words that encourage users to take some fitness-related action. Lululemon also score significantly higher on the use of commercial photography and the inclusion of more than two people in a photo.

There was no significant difference in the following characteristics for the two brands motivation: $t(298) = -1.74$, $p > .005$), courage $t(298) = -3.26$, $p > .005$), performance $t(298) = 0.78$, $p > .005$), fitness activity $t(298) = 0.23$, $p > .005$), duo $t(298) = -1.76$, $p > .005$), unsure (gender) $t(298) = -1324$, $p > .005$). These results indicate that there are no significant differences in how the two brands use these characteristics in their Instagram posts.

RQ2 asked, is there a significant difference between Nike and Lululemon's emotional, rational, and ethical appeal? To answer this question, first, we summed the variables within each of the three persuasive appeals. Next, we used a two-tailed independent samples t-test at an alpha level of 0.05 to identify the differences in each of the persuasive appeals. There is a significant difference across the three appeals with specification as follows: emotional appeal $t(298) = -4.51$, $p < .005$), rational appeal $t(298) = -3.34$, $p < .005$) and ethical appeal $t(298) = 5.41$, $p < .005$). The results indicate Lululemon posts feature more emotional and rational appeals, while Nike posts featured more ethical appeals.

Table 5

Comparison of persuasive appeals

Characteristic	M(S.D.)		t-value	p-value
	Nike	Lululemon		
Emotional Appeal	.65(.73)	**1.03**(.73)	-4.51	.000
Rational Appeal	.29(.47)	**0.57**(.89)	-3.34	.000
Ethical Appeal	**1.8(.43**)	1.44(.69)	5.41	.000

RQ3 asked what persuasive appeals of the brands' posts are most likely to relate to followers' engagement? We used multiple regression to identify significant predictors. The three persuasive appeals were regressed against the dependent variables, number of likes, and number of comments. Table 5 indicates the value of the F test for each of the models are significant at the 0.05 level with specification as follows: number of likes (F(3, 296) = 9.83, $p < .005$), number of comments (F(3, 296) = 3.63, $p < .005$). The

results of these F tests indicate that all models have significant F values meaning that there is a general relationship between the predictors and the dependent variables.

Table 6

Regression results for persuasive appeals

Variable	Number of Likes			Number of Comments		
	B	t-value	*p-value*	B	t-value	p-value
Emotional appeal	-0.18	-3.15	.002	-0.12	-2.00	.046
Rational Appeal	-0.20	-3.49	.001	-0.12	-2.00	.046
Ethical Appeal	0.21	3.66	.000	0.13	2.25	.025
N	150			150		
F	9.83		.000	3.63		.013
R2	0.09			.035		
R2Adjusted	0.08			.026		

Table 6 also presents the significant predictors of the regression models. Emotional appeal, rational appeal, and ethical appeal are predictors of the level of engagement in relation to the number of likes and the number of comments. Adjusted R square of 8% of the variance in the output for the number of likes is explained by the predicted variables, emotional appeal, rational appeal, and ethical appeal. Emotional appeal is significant with a coefficient of -0.18, meaning that one standard deviation increase in the level of emotional appeal will result in a -0.18 decrease in the number of likes. Likewise, an increase in the presence of rational appeal in a photo post will result in an -0.20 decrease in the number of likes. With a coefficient of 0.21, the ethical appeal is a positive predictor of the number of likes meaning that an increase in the level logo/slogan, celebrity endorsement, or real people would increase the number of likes.

With respect to the number of comments, the adjusted R Square 2.6% of the variance in the output for the number of comments is explained by the predicted variables, emotional appeal, rational appeal, and ethical appeal. The *p*-values for the emotional, rational, and ethical appeal are statistically significant. The value of the unstandardized coefficients for the emotional and rational appeal is negative. Therefore, the result indicates that the presence of emotional and rational appeal in the post would result in a lower number of comments. The value of the unstandardized coefficient for the ethical appeal is positive, which means that a unit of increase in the presence of ethical appeals would result in an increase in the number of comments. The results indicate that ethical appeals are more likely to increase the level of engagement with fitness's brand posts with respect to the number of likes and comments.

RQ4 asked what interactive features in brand posts are most likely to relate to followers' engagement?

Table 7

Regression results for interactivity

	Number of Likes			Number of Comments		
Variable	*B*	t-value	*p-value*	*B*	t-value	p-value
Number of Tags	0.22	4.16	.000	0.21	3.83	.000
Number of Links	-0.34	-6.33	.000	-0.27	-4.91	.000
Number of Hashtags	0.002	0.04	.972	0.037	-0.69	.493
N	150			150		
F	21.28		.000	14.52		.000
R2	0.18			.13		
R2$_{Adjusted}$	.17			.12		

The three variables, number of tags, number of links, and number of hashtags, were regressed against the dependent variables, number of likes and number of comments. Table 7 indicates the value of the F test for each of the models are significant at the 0.05 level with specification as follows: number of likes ($F(3, 296) = 21.28$, $p < .005$), number of comments likes ($F(3, 296) = 14.52 1$, $p < .005$). The results of these F tests indicate that all models have significant F values meaning that there is a general relationship between the predictors and the dependent variables.

Nearly 17% (adjusted R square) of the variance in the output of the number of likes is explained by the predicted variables, the number of tags, links, and hashtags. The *p*-values for the number of tags and links are statistically significant. The value of the coefficient for the number of tags is 0.22. This indicates that a one standard deviation increase in the number of tags in the post will result in a 0.22 increase in the number of comments. The value of the coefficient for the number of links is -0.34, which means that an increase in the number of links in the post will result in a decrease in the number of likes. Hashtags do not contribute to the explained variation in likes ($p > .05$).

Nearly 12% (adjusted R square) of the variance in the output of the number of comments is explained by the predicted variables, the number of tags, links, and hashtags. The *p*-values for the number of tags and links are statistically significant. The value of the coefficient for the number of tags is 0.21. This indicates that one standard deviation increase in the number of tags in the textual post will result in a 0.21 increase in the number of comments. The value of the coefficient for the number of links is -0.27, which means that increase in the number of links in the post would reduce the

number of comments. Hashtags do not contribute to the explained variation in comments ($p>.05$).

Discussion

The Instagram platform offers the brand a direct way of getting in contact with audiences with a specialized interest such as fitness. It provides large firms with the opportunity to connect and build communities with their followers. Instagram also provides smaller firms with a niche focus to not only create virtual communities but also to allow them to showcase their products and services.

The results of this study show that fitness brands are embracing the Instagram platform to connect with customers, and they use a range of characteristics in their photographs and textual content. Analysis of the brands' photos and textual content reveals that brands are more likely to use ethical appeals than emotional appeals. The ethical appeals embedded within the posts are logos/slogans, celebrity endorsement, and real people. Both brands extensively used logos or slogans in their brand posts on Instagram. However, Nike's dominant swoosh was more defined in the photos than Lululemon's logo, which, at times, was barely visible even when the textual message promoted the brand's product. Another significant finding is the photography style used by athletic brands. Both brands used domestic photos in their posts rather than commercial or studio-type photographs. This shows that marketers of athletic brands prefer posting images that appear to have minimal or no editing. One of the remarkable findings of the study is how athletic brands present gender in their posts, with Nike photos featuring more men in the brand's post than Lululemon.

This study also found that Nike's textual messages to be more inspirational in nature than Lululemon's by calling on followers to take some action related to the general idea or content shared in the posts. The inspirational messages promoted by Nike relate to their mission statement, which focuses on "making a positive impact in the communities" where they live and work (Nike, n.d.). The findings indicate that Nike focuses more on branding in its post than Lululemon. Nike has a high level of celebrity endorsement whereas, Lululemon uses more real people who are either marathon runners, yoga or dance teachers, or regular people wearing or showcasing the brand's products. The use of real people in Lululemon's post complements their vision of building real relationships with people, understand their passion, and assist them in celebrating their goals (Lululemon, n.d.).

This study further provides sports marketing and brand professionals with pertinent information to enhance brand presence and customer engagement using social media. The findings of this study suggest tools to improve visual communication by focusing on ethical and emotional appeals on social media.

Moreover, it provides information that can help brand managers to increase the interactivity of their posts on social media sites such as Instagram and Facebook. However, given this study is limited to two popular fitness brands on Instagram, it would be useful to determine whether these results hold true for other types of brands and on different social media platforms.

Future Research

The analysis of Nike's and Lululemon's Instagram posts provides interesting results on how the two brands position themselves to followers. To gain deeper insights, however, future research should analyze the comments together with the respective posts and also explore whether the brands' use of photos and textual content evolved over time. Such analysis can lead to a better understanding of the effectiveness of the brands' marketing strategy, including the use of persuasive appeals on customers and the impact of visual characteristics on customer satisfaction and purchase intention. Given this study analyzed only single photo posts, future analysis of videos and multiple photo posts for the presence or absence of the coded characteristics would provide a more comprehensive view of the brand's use of the Instagram platform to connect with customers. Yet another area for future research is an exploration into the dominance of men in Nike's photos as compared to Lululemon, which provides an opportunity for scholars to further investigate gender representation in brand posts on social networking sites. Lastly, future research would be beneficial in explaining the relevance of the null effect of hashtags on user engagement.

Conclusion

This study presented an in-depth analysis of brand posts on Instagram by analyzing the photo and the textual message separately as well as each post as a single unit. The codebook developed for this study expands upon the number of coding categories in extant literature that can be used to explore brand marketing strategies on Instagram and other social networking sites. With its visual appeal, Instagram has unique features that enhance the relationship between brands and consumers. By analyzing brand Instagram strategy, researchers can continue to examine both the positive and negative effects of brand posts on users.

References

Adegbola, O., Gearhart, S., & Skarda-Mitchell, J. (2018). Using Instagram to engage with (potential) consumers: A study of Forbes Most Valuable

Brands' use of Instagram. *The Journal of Social Media in Society, 7*(2), 232-251.

Anagnostopoulos, C., Parganas, P., Chadwick, S., & Fenton, A. (2018). Branding in pictures: Using Instagram as a brand management tool in professional team sport organisations. *European Sport Management Quarterly*, *18*(4), 413-438.

Baker, S. A., & Walsh, M. J. (2018). 'Good Morning Fitfam': Top posts, hashtags and gender display on Instagram. *New Media & Society, 20*(12), 4553-4570.

Chen, H. (2018). College-aged young consumers' perceptions of social media marketing: The story of Instagram. *Journal of Current Issues & Research in Advertising*, *39*(1), 22-36.

Deighton-Smith, N., & Bell, B. T. (2018). Objectifying fitness: A content and thematic analysis of# fitspiration images on social media. *Psychology of Popular Media Culture*, *7*(4), 467.

De Vries, L., Gensler, S., & Leeflang, P. S. (2012). Popularity of brand posts on brand fan pages: An investigation of the effects of social media marketing. *Journal of Interactive Marketing*, *26*(2), 83-91.

García-Pérez, A. (2006). T-Tests with models close to the normal distribution. In N. Balakrishnan, J. M. Sarabia, & E. Castillo (Eds.), *Advances in distribution theory, order statistics, and inference* (pp. 363–379). Birkhäuser Boston. https://doi.org/10.1007/0-8176-4487-3_23

Geurin-Eagleman, A. N., & Burch, L. M. (2016). Communicating via photographs: A gendered analysis of Olympic athletes' visual self-presentation on Instagram. *Sport Management Review, 19*(2), 133-145.

Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R., & Singh, R. (2016). Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. *Journal of Business Research*, *69*, 5833-5841.

Hagen, L. (2016). *Topic modeling for e-petition analysis: Interpreting petitioners' policy priorities*. Thesis (Ph. D.) - The University at Albany. Department of Informatics.

IBM Corp. (2019). IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp.

Khanna, P. (2016). A content analysis of emotional and rational appeals in selected products advertising. *IRA-International Journal of Management & Social Sciences*, *4*(3), 568-578

Kusumasondjaja, S. (2018). The roles of message appeals and orientation on social media brand communication effectiveness: An evidence from Indonesia. *Asia Pacific Journal of Marketing and Logistics*, *30,* 1135-1158.

Lee, J. E., Hur, S., & Watkins, B. (2018). Visual communication of luxury fashion brands on social media: effects of visual complexity and brand familiarity. *Journal of Brand Management*, *25*(5), 449-462.

Liu, J., Li, C., Ji, Y. G., North, M., & Yang, F. (2017). Like it or not: The Fortune 500's Facebook strategies to generate users' electronic word-of-mouth. *Computers in Human Behavior*, *73*, 605-613.

Luarn, P., Lin, Y. F., & Chiu, Y. P. (2015). Influence of Facebook brand-page posts on online engagement. *Online Information Review*, *39*(4), 505-519.

Lululemon. [@lululemon]. (n.d.) *Page Name.* [Instagram Profile] Retrieved April 8, 2020 from https://www.instagram.com/lululemon/

Lululemon. (n.d.). *History*. Retrieved from https://info.lululemon.com/about/our-story/history

MarketWatch. (2019). *Lululemon athletica inc*. Retrieved from https://www.marketwatch.com/investing/stock/lulu/profile

MarketWatch. (2019). *Nike Inc*. *Cl B*. Retrieved from https://www.marketwatch.com/investing/stock/nke/profile

Mottl, J. (2015, June 10). Armed with the right strategy, Instagram is valuable marketing weapon. *Retail Customer Experience.* Retrieved from https://www.retailcustomerexperience.com/articles/armed-with-the-right-strategy-instagram-is-valuable-marketing-weapon/

Nike. [@nike]. (n.d.) *Page Name.* [Instagram Profile] Retrieved April 8, 2020 from https://www.instagram.com/nike/

Nike (n.d.)*. About Nike*. Retrieved from https://about.nike.com/

O' Connor, C. (2014, February 13). Starbucks and Nike are winning Instagram (and your photos are helping). *Forbes.* Retrieved from https://www.forbes.com/sites/clareoconnor/2014/02/13/starbucks-

and-nike-are-winning-instagram-and-your-photos-are-helping/#2ce6b16d4894

Paine, K. D. (2011). *Measure what matters: Online tools for understanding customers, social media, engagement, and key relationships.* John D. Wiley.

Pew Research Center. (2019). *Social media fact sheet.* Retrieved from https://www.pewinternet.org/fact-sheet/social-media/

Pinto, M. B., & Yagnik, A. (2017). Fit for life: A content analysis of fitness tracker brands use of Facebook in social media marketing. *Journal of Brand Management*, *24*(1), 49-67.

Smith, L. R., & Sanderson, J. (2015). I'm going to Instagram it! An analysis of athlete self-presentation on Instagram. *Journal of Broadcasting & Electronic Media*, *59*(2), 342-358.

Statista. (2019). *Most popular social networks worldwide as of October 2019, ranked by number of active users (in millions).* Retrieved from https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of users/

Sundar, S. S., Kalyanaraman, S., & Brown, J. (2003). Explicating web site interactivity: Impression formation effects in political campaign sites. *Communication Research*, *30*(1), 30-59.

Tiggemann, M., & Zaccardo, M. (2018). 'Strong is the new skinny': A content analysis of #fitspiration images on Instagram. *Journal of Health Psychology*, *23*, 1003-1011.

Worldwide, D. E. I. (2008). The impact of social media on purchasing behavior. *Engaging Consumers Online.* Retrieved from https://themarketingguy.files.wordpress.com/2008/12/dei-study-engaging-consumers-online-summary.pdf

Table 8
Codebook

Category	Sub-category	Variable	Description
Appeals	Emotional	Happiness	Post (visual and text) conveys a sense of happiness
		Sadness	Post (visual and text) conveys a sense of sadness
		Fear	Post (visual and text) conveys a sense of fear or threat of loss
		Motivation	Post (visual and text) encourages to take action
		Courage	Post (visual and text) indicating perseverance or a daring act to achieve a goal/dream
	Rational Appeal	Performance	Post (visual and text) provides information or depicts use of the product for fitness activity
		Durability	Textual Post provides information or depicts the longevity of product
		Quality	Textual Post provides information about superior quality of product
		Price	Textual Post provides information about price of product
	Ethical Appeal	Logo/Slogan	Post (visual and text) features brand logo/slogan
		Celebrity Endorsement	Post (visual and text) features athletes or actors
		Real People	Post (visual and text) features people who are not athletes
Message Orientation	Message Orientation	Task	Information in the textual message related to selling or promoting a product or a cause
		Non-Task	General statements, ideas or quotes in the textual message that are unrelated to promoting a product or a cause
		Fitspiration	Textual post focusing on only fitness. Motivates someone to sustain or improve health and fitness.

		Inspiration	Textual Post that are inspirational in nature but are not fitness related
	Action	Fitness Activity	People engaging in fitness activities
	Type of Shot	Domestic Photography	Photo commonly seen as candid images "with typically low-quality lighting, little editing and no on-image text" typical of social media posts (Adegbola et al., 2018, p. 240)
		Commercial Photography	Photo similar to posed images typical of traditional advertising and appear to have post-production editing (Adegbola et al.)
Photo Content	Number of People in Photo	Solo	Photo features one person
		Duo	Photo features two people
		Group	Photo featuring three or more people
		None	Photo without people
	Gender	Male	Photo includes one or more man
		Female	Photo includes one or more woman
		Unsure	Unable to identify gender of persons featured in photo
	Vividness	High Velocity	Person/celebrity performing an intense/powerful action
	Focus of Photo	Product	Photo post where brand product is the focus
		Non-Product	Photo post where brand product is not the focus
Linking	Engagement	Number of Tags	Number of tags in textual message/photo
		Number of Links	Number of links in textual message/photo
		Number Hashtags	Number of hashtags in textual message/photo

Popularity	Number of Comments	Total number of comments for each post
	Number of Likes	Total number of likes for each post

Note. All variables were codes as 0 = not present, and 1 = present

Table 9
Inter-coder Reliability Scores

Category	Variable	Krippendorff's Alpha	Gwet's AC1	Conger's Kappa	Percent Agreement
Emotional Appeal	Happiness	0.75	0.80	0.75	0.89
	Fear	NA**	1	NaN*	1
	Sadness	0.49	0.98	0.49	0.98
	Motivation	0.55	0.61	0.56	0.79
	Courage	0.65	0.96	0.65	0.96
Rational Appeal	Performance	0.64	0.71	0.64	0.84
	Durability	0.80	0.95	0.80	0.96
	Quality	-0.02	0.95	0.00	0.95
	Price	NA**	1	NaN*	1
Ethical Appeal	Logo/slogan	0.76	0.86	0.76	0.91
	Celebrity Endorsement	0.88	0.88	0.88	0.94
	Real People	0.90	0.90	0.90	0.95
Message Orientation	Task	0.86	0.92	0.86	0.95
	Non-task	0.86	0.92	0.86	0.95
	Fitspiration	0.50	0.69	0.51	0.81
	Inspiration	0.64	0.64	0.65	0.82
Action	Fitness Activity	0.66	0.66	0.67	0.83
Type of Shot	Domestic Photography	0.65	0.71	0.64	0.84
	Commercial Photography	0.76	0.83	0.76	0.90
	Product	0.66	0.76	0.66	0.86
	Non-Product	0.64	0.74	0.65	0.85
Number of People	Solo	0.94	0.94	0.94	0.97
	Duo	0.86	0.98	0.86	0.98
	Group	0.91	0.93	0.91	0.96
	None	0.49	0.98	0.49	0.98
Gender	Male	0.90	0.90	0.90	0.95
	Female	0.92	0.93	0.91	0.96
	Unsure	0.42	0.89	0.43	0.91
Vividness	High Velocity	0.47	0.93	0.48	0.94

Note. *Not a number **Not Applicable