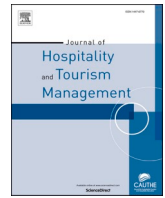




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The power of engagement: Understanding active social media engagement and the impact on sales in the hospitality industry

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ABSTRACT

This study seeks to understand the most important features of active social media engagement among followers of a food and beverage sales organization, and the impact of social media engagement rate on sales of new products. The study provides empirical evidence that highly engaged social media posts drive firm performance through increased sales. Additionally, the study provides a formula for success by using text mining strategies to uncover most effective use of the social media channels. The text mining methods reveal the best date/time, type of posting, hashtag to use and social media channel that provides the highest engagement level.

1. Introduction

In the last couple of decades, internet revolutions have played pivotal role in helping business performance (Kim, Li, & Brymer, 2016). Web applications provide opportunities to transfer internet abilities to the social environment where individuals are able to interact online by using social media (Tajvidi & Karami, 2017). Specifically, company investment in e-commerce, which includes website development and social media capabilities, has increased firm performance (Hua, Morosan, & DeFranco, 2015). Thus, scholars have extolled the usefulness of e-commerce capabilities, and have encouraged firms to invest resources into these strategies (Hua, 2016).

With the dramatic development of social media, many successful businesses spend substantial effort, money and time on social media marketing in order to achieve their business objectives (Boone & Kurtz, 2007). For example, many firms establish their social media sites and share interesting and attractive information about their brands and products to increase awareness and improve the effectiveness of brand building as well as acquiring customers (de Vries, Gensler, & Leeflang, 2017). 85% of businesses are currently using social media to implement their marketing campaigns and the global penetration rate is 70% (Statista, 2019). As an important component of promotional mix, social media is widely used to help companies directly communicate with their current and potential customers and deliver positive marketplace word of mouth (Xie et al., 2016). Companies can compare and explore which types of messages are favored by social media users in order to interact

and engage with their consumers more effectively (Kwok & Yu, 2013). Within the field of new product development and promotion, companies use social media to engage and collaborate directly with customers and learn about their expectations to generate innovative product ideas (Roberts & Candi, 2014). Thus, quantifying the impact of social media channels to promote products and services presents a timely research purpose for the food and beverage products industry.

Over the past decade, social media marketing has increasingly grown as one of the most influential digital marketing techniques (Quach, 2017) for companies selling various products and services, particularly in the food and beverage supplier space (Chan & Guillet, 2011). This is a smart business move, as the number of social media users worldwide is 3.484 billion, an increase of 9 percent from 2018 (Quach, Shao, Ross, & Thaichon, 2019). The easy access and simple use of social media platforms provides an innovative yet relatively inexpensive way to connect and engage with targeted customers, which has inspired companies to develop comprehensive social media strategies (Fischer & Reuber, 2011). Development of company strategy using social media channels is further expected to accelerate over the next 5 years by 66 percent (Quach et al., 2019).

This investment in resources and money by companies confirms that social media has become a powerful tool for organizations to facilitate customer engagement and participation. Social media allows companies to spread a large amount of online information to numerous customers, as well as interact with their customers through marketing activities (Dolan & Goodman, 2017; Harrigan, Evers, Miles, & Daly, 2017; Zhang,

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Guo, Hu, & Liu, 2017). Additionally, social media platforms empower customers to actively engage with brands, acting as the co-creators of brand messages (Ham, Lee, Yoon, & Kim, 2020; Sanz-Blas et al., 2019; Zhang, Guo, Hu & Li, 2017).

Several studies have analyzed social media active engagement/participation (Malthouse, Haenlein, Skiera, Wege, & Zhang, 2013). For example, research by Brodie, Ilic, Juric, and Hollebeek (2013) focused first on conceptualizing the construct of active and passive customer engagement, while Hollebeek, Glynn, and Brodie (2014) empirically validated measurement scales. Malthouse et al. (2013) and Muntinga, Moorman, and Smit (2011) discussed properties of engagement and de Vries et al. (2017) and Wirtz, Gittel, Langer, and Thomas (2013) identified antecedents and consequences. For many industries, participation and engagement have been studied in different areas including medicine, politics, retail and healthcare (Vohra & Bhardwaj, 2019; Cheston, Flickinger, & Chisolm, 2013).

For the hospitality industry, much of the research done in social media has been specific to hotels. For example, Kang (2018) investigated the role of satisfaction in the relationship between active participation and consumer behaviors that benefit hotels, while simultaneously addressing the importance of active members in estimating the effectiveness of online brand communities in social media marketing. Additionally, Al-Msallam and Alhaddad (2016) identified predictors of participation for hotel Facebook pages and highlighted the importance of active participation compared to passive participation.

In the food and beverage industry, some research has been done on the social media impact for select restaurants and locations. For example, Park, Jang, and Ok (2016) used Twitter analysis to explore diner perceptions of Asian restaurants while Lepkowska-White and Parsons (2019) analyzed small restaurant's social media strategies to identify challenges and successes of using social media as a monitoring tool. However, a research gap exists regarding the use and evaluation of social media tools for promoting food and beverage products (Gaber & Wright, 2014; Singh, Shukla, & Mishra, 2018). This segment has not been analyzed by the academic community and is an important component of the food and beverage industry. Food and beverage products provided by global suppliers are not only critical to the success of the food and beverage industry, but competition between products warrants better understanding of ways to drive success (Singh et al., 2018). Evaluation of social media participation and engagement by users of food and beverage products may help understand the best formula for success and gain a competitive advantage.

However, while most sales and marketing teams agree that there is a correlation to improved sales and profit margin figures when products are launched through social media channels (Kim & Ko, 2012), it can be difficult to quantify and measure the exact impact of social media marketing strategies (McCann & Barlow, 2015). Despite research about active participation/engagement in other fields, there is limited findings that define active participation/engagement among social media users in the hospitality industry, and more specifically, the food and beverage products industry. Furthermore, active participation has been explored in various studies, but there is currently no formula that denotes an actively engaged social media user. In addition, and most importantly, the impact of a highly engaged social media post has not been empirically tested on firm performance (sales).

Therefore, the purpose of this study is to uncover which factors/actions denote a highly engaged social media post, and to ascertain if these types of posts affect firm performance for a food and beverage products company. Two research questions are under investigation: (1) What is the critical formula for a highly engaging social media post? (2) Does this formula contribute to firm sales?

2. Literature review

2.1. Customer engagement and active participation in online brand communities

The primary goals of the online brand communities in social media are to build relationships with consumers, collect profiles and gain understanding about customers' experiences with brands. According to Habibi, Laroche, and Richard (2014), the more actively the members participate in community activities, the more they will cooperate and interact with brands, thereby increasing potential for purchasing behaviors.

As an important factor in customer relationship management, customer engagement is defined as "a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships" (Brodie et al., 2013, p. 260). Customer engagement plays a crucial role in enhancing brand performance, connecting and interacting with their customers including emotional, cognitive and behavioral involvement, co-creating values with enterprises, brands and other customers (Zhang et al., 2017; Dessart, Veloutsou, & Morgan-Thomas, 2015). A higher level of customer engagement leads to a stronger customer relationship that may help customers feel more connected and committed to the brand, trust their preferred brands more, and boost more brand satisfaction and loyalty (Harrigan et al., 2017; van Asperen, de Rooij, & Dijkmans, 2018).

Dessart (2017) investigated individual-level antecedents and relational outcomes of social media engagement. Dessart (2017) also proposed that social media engagement is composed of affective, cognitive and behavioral dimensions. Results found that high social media engagement increased brand commitment and that attitude towards the community and online interaction propensity all impact social media engagement. Additionally, Guesalaga (2016) proposed that organizational competence and commitment, as well as relevant person antecedents are meaningful determinants of social media usage in sales. Antecedents of engagement play an important role in understanding how to maximize social media platforms to accomplish specific objectives.

The hospitality industry has recognized the benefits of customer engagement through social media (Harrigan et al., 2017). As a motivational construct for customers' intention to interact and cooperate with the community and others, customer engagement has been understood to be a key driver for customer-brand relationships in social media brand communities. Members' active participation is considered to be a form of customer engagement (Kang, 2018), and a key construct affecting the prosperity of online communities (Kang, 2018; Paris, Lee, & Seery, 2010). Researchers have discussed activities that are driven by both passive and active members of online communities (Ridings, Gefen, & Arinze, 2006) and state that active members have deeper relationships with other members and can therefore connect with potential customers. Thus, previous studies have demonstrated that increased traffic supports active participation, which can then be used to stimulate engagement towards product-related customer behaviors, such as purchases (Qu & Lee, 2011).

By capitalizing on customer active participation and therefore engagement, many businesses have successfully increased their short-term sales and also have been able to deliver long-term effectiveness (Handley, 2016). Companies' sales personnel are able to obtain more information on their current and potential customers' and can connect with the brand or product through digital analytics stemming from searches and comments (Goldenberg, 2015). Social media also enables

firms to expand their external resources and build relationships by adopting information and communication technologies, resulting in gaining more competitive positions among the marketplace and positively influencing sales performance (Bocconcelli et al., 2016).

2.2. Social media in sales: Co-creation of brand message and involvement

As mentioned in the previous section, customers' role in the consumption and exchange process can be characterized as "passive" or "active" (Fernandes & Remelhe, 2016). The benefit of active participants means that customers can co-create value with firms through their participation in firm-initiated activities in social media which help form their identities, express their preferences, socialize with other users and create different experiences (Liu & Jo, 2020).

The underlying theme of brand co-creation is that the use of social media must be driven by a deep understanding of the customers and their commitment to the brand. Therefore, social media should be "owned" by sales and marketing, as these functions know customers best and can use the technology to create deeper committed relationships between the customers and the brand. Andzulis, Panagopoulos, and Rapp (2012) reviewed role of social media in the sales force and process, and called for the establishment of metrics of social media success that are tailored to the customers and the value proposition. They suggest that the strategies should relate to relationships, brand commitment, product/service, customer, and price, and should be integrated to enhance customer engagement.

Previous literature also provides metrics to measure the effectiveness of social media implementation based on the specific objectives of the company related to value co-creation (Hoffman & Fodor, 2010; McCann & Barlow, 2015). For example, Hoffman and Fodor (2010) provided various social media metrics for different social media applications with three main objective classifications: brand awareness, brand engagement, and word of mouth. Each application has its own specific metric according to distinct characteristics of the particular social media channel in order to measure its effectiveness and achievement of each objective.

Additionally, Agnihotri, Kothandaraman, Kashyap, and Singh (2012) presented a framework on how the use of social media by salespeople creates value in a co-creation approach with customers. They discussed how the fit between salespeople's behaviors in information sharing, customer service and trust building, and social media capabilities, increases the perceived value by both customers and salespeople. Recognizing that the increased availability of social media platforms has forced many companies to integrate these with their traditional customer relationship management (CRM) systems, Trainor (2012) provided a framework to link social media technologies with traditional CRM and thus, affect performance. He suggested that the emphasis of social CRM technologies must be placed on having many-to-many relationships between customers and organizations, establishing interactive dialogs and information sharing, and promoting co-created knowledge and value with customers.

2.3. Critical formula for measuring engagement effectiveness

Co-creation of value and increased customer purchasing behavior as a result of leveraging technology warrants a discussion of measuring the effectiveness of social media engagement at creating value and stimulating purchasing behavior. To understand how using social media influences a company's business performance through purchases, many researchers have recognized the significance of engagement and suggest performance metrics might be interpreted in different ways (Aluri, Slevitch, & Larzelere, 2015; Michopoulou & Moisa, 2019). In the case of social media adoption practices within the hospitality industry and more specifically the food and beverage products industry, engagement is recognized as a metric with greater importance that contributes to generating new followers, increasing customer interaction and feedback, and initiating and

maintaining conversations (Michopoulou & Moisa, 2019).

It seems that each technology function is attempting to show its worth by capturing and adding value to organizations, and as such, measuring social media performance has become increasingly important for companies (Zhang et al., 2017). Research indicates that the measurement of engagement can be regarded as an umbrella concept, establishing which engagement rates are more adequate and more important for each type of social media, based on objective. For example, a study by Kim and Kim (2018) has revealed that consumer-generated social referrals regarding deals significantly boost sales in social commerce. Additionally, this finding held true for Facebook posts but not for twitter posts, implying that not all social media referrals are meaningful for sales increases.

Social media engagement metrics are also employed to define goals and assess the degree to which companies implement social media strategies that produce desired marketing outcomes (Peters, Chen, Kaplan, Ognibeni, & Pauwels, 2013). Prior studies have offered empirical guidelines for measuring social media engagement on determining the success of the social media campaign (Pentina, Guilloux, & Micu, 2018; Yoon et al., 2018). Based on the engagement attributes, the effectiveness of social media engagement is usually evaluated by two primary exploratory metrics, which are volume and valence, respectively. Volume indicates level of engagement by providing quantitative metrics, including the number of fans, followers, likes, shares, comments, while valence is featured with emotional tone of engagement, such as positive or negative comments. Those two types of metrics may suggest that the active participant is engaged in their interaction with the firm and may contribute value to the brand through purchase behaviors and increased sales and financial performance (Yoon et al., 2018).

While the benefits of social media engagement with consumers in firms' positive financial performance (i.e. direct sales) are indisputable, there is little academic research on examining this relationship with empirical evidence due to the limited corporate data available to public, especially for suppliers of products and services in the food and beverage industry (Michopoulou & Moisa, 2019; Kizildag, Altin, Ozdemir, & Demirer, 2017). Additionally, Kizildag et al. (2017) found no papers that measured the effectiveness of social media on corporate financial outcomes based on the critical financial proxies. A recent study by Michopoulou and Moisa (2019) interviewed hotel managers on their perspectives of social media measurement and confirmed the lack of social media analytics within the hospitality industry. The study urged academia and professionals to develop more specific ways social media engagement metrics may help with social media initiatives, such as growing sales. Given this growing demand to understand social media and its links to firms' financial performance, the current research uncovers the formula for success of highly engaged posts by investigating the relationship between social media engagement and product sales. In this context, we focus on how social media engagement stimulates actual sales. More specially, we focus on the direct sales, since these are the best indicators to evaluate the financial performance of a social media campaign (Kumar & Mirchandani, 2012).

3. Methodology

3.1. Study purpose and sample

The purpose of the study is to uncover the power of social media on firm performance, as measured by direct sales. First, the study seeks the critical formula for a highly engaging social media post and then determines whether the formula contributes to firm sales. Thus, two studies are conducted:

Study 1. Text mining is performed on the unstructured social media posts to identify the critical components of a highly engaging social media post.

Study 2. A regression analysis is conducted to quantify the impact of social media engagement on sales.

Past studies show that the food and beverage products industry have received little attention in IT research and encouraged more attention from a technological perspective (Chiasson & Davidson, 2005). This study places the research context in the food service sales sector, which are rarely studied in the current literature. Therefore, the findings of this study could help expand the extant research scope of the food and beverage products industry. In Study 1 and Study 2, one food and beverage services company (Monin Inc.) provided data for the applied analysis. This case study approach allows for deeper and richer findings by focusing on the generation of new ideas by highlighting the importance of context in applied research (Poulis, Poulis, & Plakoyiannaki, 2013). Given the personal connections of the researchers with Monin Inc., the unstructured data of reviews on Facebook, Instagram, and Twitter were voluntarily provided by the company as a generous contribution to the research project. As a courtesy, the researchers agreed to share the aggregated research results to the company. The reasons why Monin Inc. was selected as the study subject are twofold: first, Monin Inc. holds a paramount role in the food and beverage industry as a global supplier of flavoring products for cocktails, coffee, culinary such as syrups, sweeteners, gourmet sauces. Given the aforementioned scarcity of existing literature in the food and beverage industry, studying Monin Inc. provides valuable evidence in this regard, contributing to the knowledge body. Second, the dataset Monin Inc. provided was relatively comprehensive, including original posts on Facebook, Instagram, and Twitter, three pillars of social media in the current markets for business marketing and promotion (Philander & Zhong, 2016; Ye, Hashim, Baghirov, & Murphy, 2018), so as to allow the researchers to fully leverage the dataset to understand the dynamics of social media posts and impacts of social media on sales.

3.2. Study 1

3.2.1. Text mining definition and steps used for data collection

As a primary and effective technique to analyze social media and consumer generated content, text mining is widely used to analyze a substantial volume of complex unstructured textual data and extract meaning information from a large amount of available social media data

(Berezina, Bilgihan, Cobanoglu, & Okumus, 2016). Text mining focuses on automatically exploring and identifying the hidden but useful patterns, trends or rules from the textual data such as emails, customer reviews and messages, and then create interpretation or models to explain questions and discover new knowledge (Park et al., 2016). With the wide adoption of social media platforms, text mining has become one of the most significant techniques for business and organizations to analyze their social media data to understand their customers, competitors and business environment, as well as provide better support for making strategic and operational decisions (Bilro, Loureiro, & Guerreiro, 2019; Guerreiro & Rita, 2020). For example, Guerreiro and Rita (2020) recently used text mining to determine what drives recommendations in online reviews; noting that positive feelings predict a positive recommendation and negative attitudes are triggers of direct negative recommendations.

The text mining procedure encompassing three steps is displayed in Fig. 1 which is partially adopted from He, Zha, & Li (2013):

Step I. data pre-processing. The unstructured social media posts from three major channels (i.e. Facebook, Twitter, and Instagram) on Monin products were extracted and transformed into a structured format. During the data pre-processing stage, data cleansing, assigning of attributes, and data integration were performed to turn the unstructured data into useable format. Specifically, the researcher used SPSS Modeler Text Analytics program to remove non-linguistic entities (e.g. http addresses, punctuations, numbers, etc.). Extraction engine in the program identified uni-terms and multi-terms from the text, filtering the text by stop-words and grouping terms using stemming procedures.

Step II. data analytics. Multiple text mining techniques (e.g. natural language processing, topic classification, term frequency, data visualization, query searches, pattern identification, etc.) were applied to examine the clean datasets to gain insights on social media users' engagement activities. SPSS Modeler 18.1 with text analytics package and MAXQDA Pro 12.0 were utilized as the major text mining tools for the study. The reason why two software programs were used lies in the fact that each of them has its own merits in system features and functionalities. We used SPSS Modeler 18.1 for extracting, grouping, and indexing the unstructured data in order to explore and extract key concepts and generate categories from the

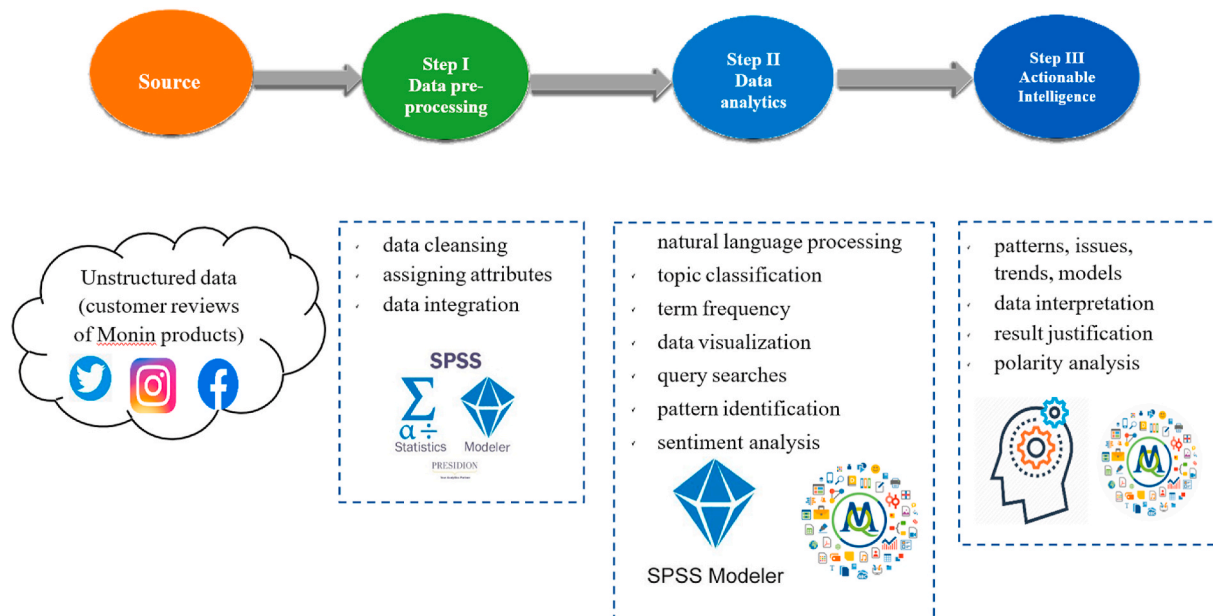


Fig. 1. Text mining Procedures for social media content.

textual data. MAXQDA Pro 12.0 software were conducted to perform various query searches.

The query searches are for testing ideas, exploring patterns, connections, and critical insights per the research question. Further, we adopted RapidMiner Studio 9.3 version with Aylien Text Analytics API extension operator (Nasim, Rajput, & Haider, 2017) to analyze the sentiments of the posts. There are more than 1500 extension operators in RapidMiner Studio 9.3 platform for data mining and machine learning procedures. Aylien Text Analytics API extension operator analyzes the input text and provide discrete sentiment polarity scores ranging from 0 to 1, of which 0–0.5 score represents negative, 0.5 score denotes neutral, and 0.5–1 score indicates positive (Aylien, n/a).

Step III. Actionable intelligence. A critical analysis is performed on the mining results to identify patterns, issues, trends, polarity classifications, and models, which serve as the basis for recommendations and actionable information. By following the three steps (pre-processing, text mining, and actionable intelligence), new knowledge including patterns, issues, and themes from the social media posts were identified. Previous scholars and practitioners have proclaimed that text mining requires continuous evaluation and refinement to achieve the best results (Romero & Ventura, 2010; Zeng, Li, & Duan, 2012).

3.3. Study 2: regression model

3.3.1. Procedures

This study utilized social media and sales data from a food service sales organization during the time from May 2017 to May 2018. A linear regression analysis was conducted in this study to explore the relationship between social media engagement rate and monthly website bottle sales for the company. In the present study, the independent variable was social media engagement rate, which referred to the average number of interactions (i.e. comments, shares, likes) on the number of followers during the selected period time, expressed as percentage. The dependent variable was defined as monthly “website” bottle sales – number of bottles of the product launched and sold to customers online. Monin Inc. provided source data of bottle sales that were specifically derived from social media marketing platforms. The bottle sales provided were “by product” and promotional launch time on social media because the company targeted sales specifically from these platforms to support their new digital marketing team structure. The relationship between engagement rate and monthly website bottle sales was proposed in the following linear regression equation:

$$\text{Monthly Website Bottle Sales} = \beta_0 + \beta_1 \text{ Engagement Rate}$$

Table 1
Social media use (may 2017 to May 2018).

Social Media	Facebook	Twitter	Instagram
<i>Metric</i>			
number of followers	160,875	2688	5141
number of posts	323	241	108
Number of likes	7586	1766	15,399
number of comments	648	n/a	767
number of shares	1674	1039	n/a
Engagement total	9908	2805	16,166
Engagement rate	6.2%	104.4%	314.5%

Engagement rate = the average number of interactions (i.e. comments, shares, likes) on number of followers during a selected period time, expressed as percentage. Engagement total = the sum of number of interactions (i.e. comments, shares, and likes) during a selected period time.

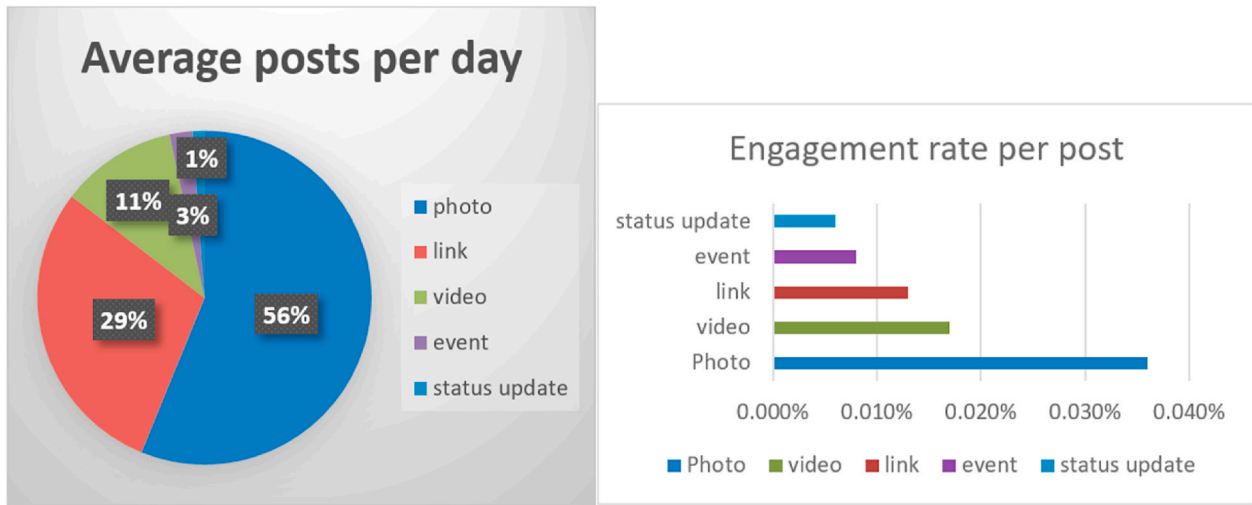
4. Findings

4.1. Study 1 findings

4.1.1. Phase I descriptive information

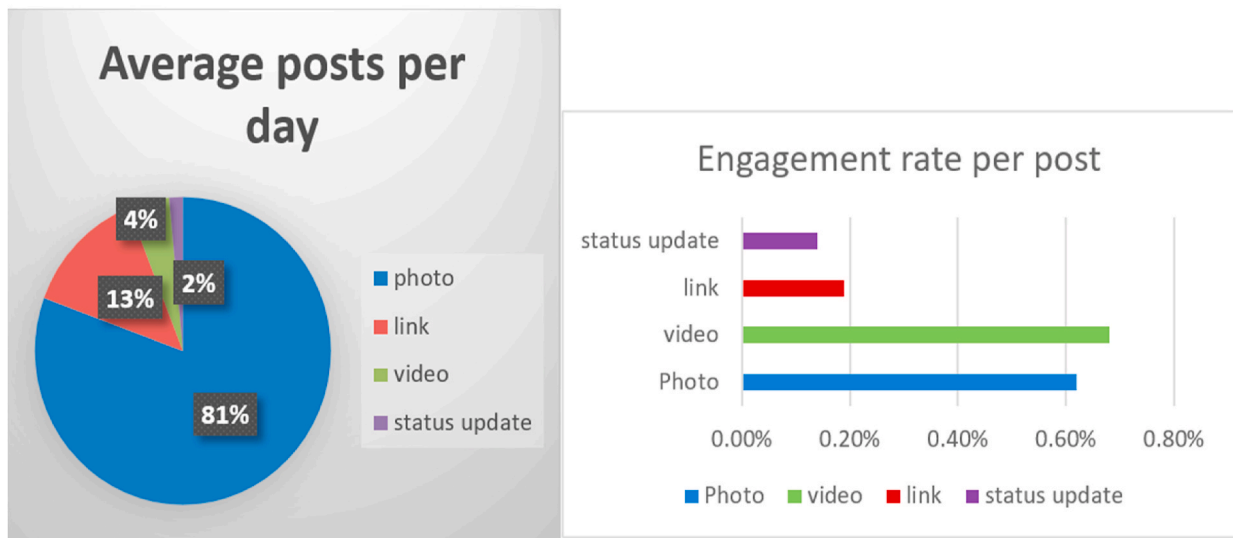
First, descriptive information about social media use of Monin company has been collected and analyzed. Quantitative data were collected from three major social media sites (i.e. Facebook, Twitter, and Instagram) during the period of May 2017 to May 2018. The metric assessing social media use about Monin include number of followers, number of posts, number of likes, number of comments, and number of shares. The metric has been proved appropriate for measuring the social media objectives in previous studies (Fernandes et al., 2016). Furthermore, engagement rate was calculated as: the average number of interactions (i.e. comments, shares, likes) on number of followers during a selected period time, expressed as percentage. Engagement total was also calculated for each social media channel: the total interactions (i.e. comments, shares, likes) on Monin company’s page on Facebook, Twitter, and Instagram. The formula for engagement measurement for social media is depicted in Table 1 and its related theoretical rational and support is provided in Section 2.3. As Table 1 shows, over the last year (May 2017 to May 2018), Monin had 160,875 followers on Facebook, 2688 followers on Twitter, and 5141 followers on Instagram. There were 323 posts about Monin on Facebook, 241 tweets on Twitter, and 108 posts on Instagram. During the period of May 2017–2018, Monin received 7586 likes, 648 comments, and 1674 shares on Facebook, which brings Monin engagement total of 9908 and 6.2% engagement rate. Monin earned 1766 likes and 1039 shares on Twitter leading to engagement total of 2805 and engagement rate of 104.4%. Lastly, Monin gained 15,399 likes and 767 comments on Instagram, resulting in engagement total of 16,166 and engagement rate of 314.5%. Therefore, from the social media engagement perspective, Table 1 indicated that Monin had a much higher engagement rate on Instagram compared with Twitter and Facebook. In particular, Instagram generated more than triple number of likes per post for Monin than Facebook, which pinpointed the success of Monin’s marketing campaign on Instagram. From market reach perspective, Facebook provided a broader potential market for Monin with 160,875 followers compared with Twitter (2688 followers) and Instagram (5141 followers).

Second, to examine further the engagement of Monin on Facebook, Twitter, and Instagram, various trends of posts for Monin on the three major social media channels were analyzed. According to Fig. 2, the most common post type for Monin on Facebook was photo (56%), followed by link (29%), and video (11%), and event (3%) and status update (1%) as the least frequent post type per day. The engagement rate generated from each post type on Facebook was photo (0.036%), video (0.017%), link (0.013%), event (0.008%), and status update (0.006%). The trends of post type for Twitter was similar to Facebook with photo (81%) as the most frequent post type followed by link (13%) and video (4%) and status update (2%), as shown in Fig. 3. The rank of post type on Twitter by engagement rate was slightly different from Facebook: video (0.68%), photo (0.62%), link (0.19%), and status update (0.14%).



Note: Engagement rate / post= the total interactions on the posts published during the selected period, per follower, expressed as percentage

Figure 3 Trends of Posts in Twitter



Note: Engagement rate / post= the total interactions on the posts published during the selected period, per follower, expressed as percentage

Fig. 2. Trends of Posts in FacebookNote : Engagement rate/post = the total interactions on the posts published during the selected period, per follower, expressed as percentage.

Because Instagram is a photo-sharing social platform, no photo type analysis was conducted on Instagram.

Third, the engagement days and hours of Monin on each social media channel were examined. As Chart 1 displays, the peak time during one day for engagement on Facebook was evening (6PM–8PM) and the peak

days for engagement on Facebook were Tuesday and Thursday. On Instagram, as shown in Chart 2, Monin received the highest engagement with the posts at night between 9 PM and 10 PM while Monin received similar engagement rate across weekdays with a slight lower engagement rate on weekends. On Twitter, Monin gained the highest

engagement rate at around 8 PM and Tuesday and Friday were the peak days when most engagement occurs on tweets, according to [Chart 3](#).

Fourth, sentiments of each Monin post on Facebook, Instagram, and Twitter were examined using the unsupervised machine learning techniques powered by Aylien Text Analytics API extension operator in RapidMiner Studio 9.3 packages. Polarity classifications were obtained ranging from 0.5 = neutral to 1 = positive. Given the fact that the dataset in the analysis were the posts by Monin Inc., no negative sentiments were detected from the textual dataset. This is understandable that companies would only post the statements in favor of themselves to retain customers and attract potential customers. The summary of the

polarity distribution for each social networking site is shown in [Table 2](#) below. To further exhibit the significance of the post sentiments to the customers, engagement metrics, i.e. number of likes, number of comments, and number of shares for each type of post sentiment on Facebook, Twitter, and Instagram are also provided in [Table 2](#). From [Table 2](#), it is clearly shown that posts with positive sentiments better engage the audience by more likes, comments, and shares across the three social media platforms, compared with neutral posts. However, there are slightly different polarity distributions of posts across the three portals. Specifically, on Instagram there were most posts with a positive tone (98%); on Facebook there were 95% of posts with a positive tone; while

Chart 1 Trends of Posts in Facebook

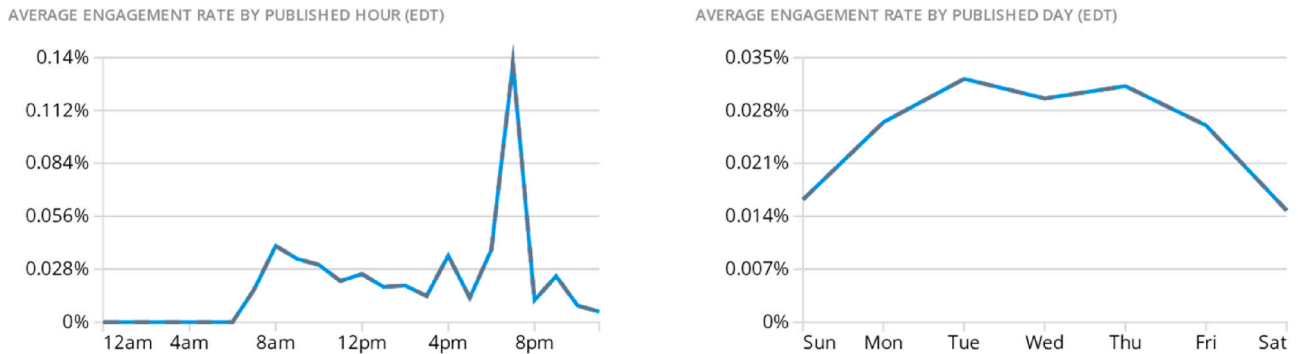


Chart 2 Trends of Posts in Instagram

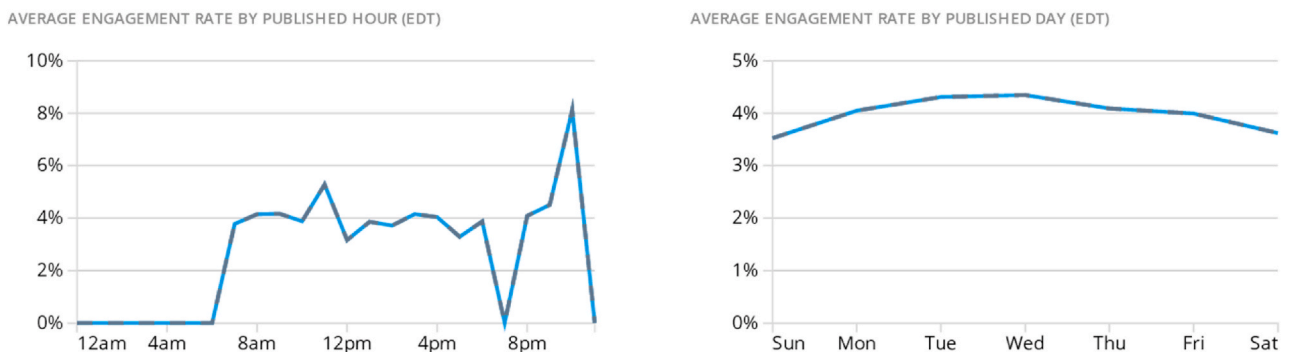


Chart 3 Trends of Posts in Twitter

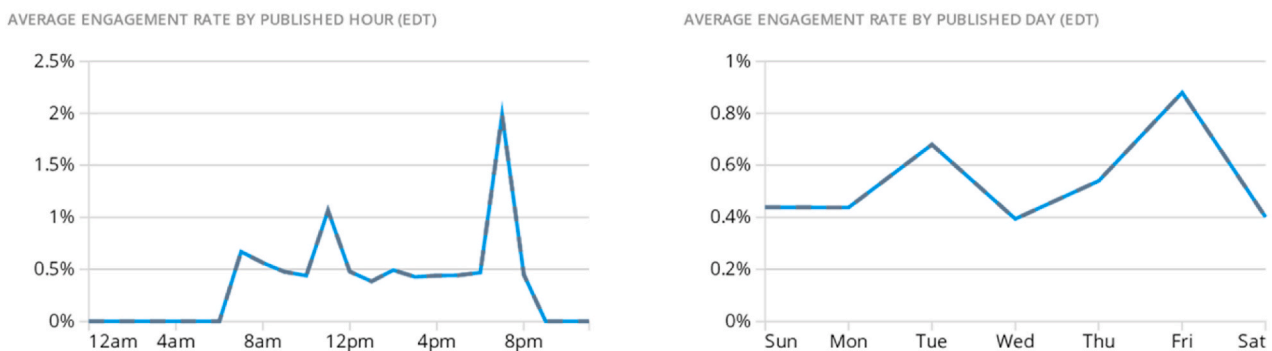


Fig. 3. Trends of Posts in TwitterNote: Engagement rate/post = the total interactions on the posts published during the selected period, per follower, expressed as percentage.

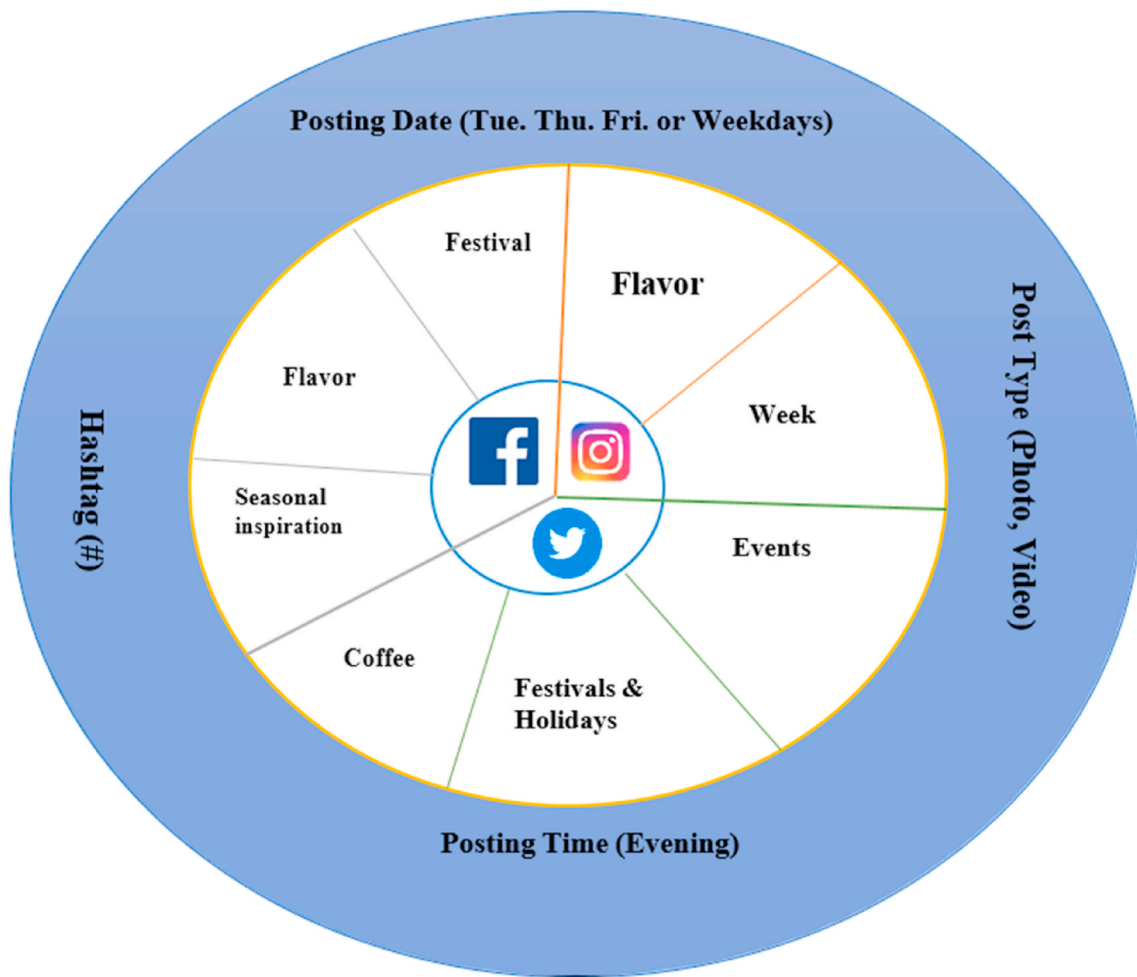


Fig. 4. Critical patterns of engaging social media posts on Facebook, twitter, and Instagram.

on Twitter, the positive posts were only 82%.

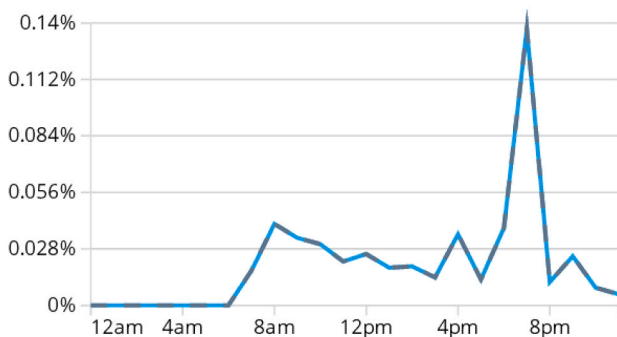
4.1.2. Phase II qualitative analysis of posts

To uncover the critical patterns of the posts that attracted the most engagement on each social media channel, text mining was applied with supplemental qualitative analysis (i.e. content analysis). Social media posts are characterized as large, noisy, and unstructured (He et al., 2013). Manual coding and analysis of mega amount of social media data is regarded as tedious and time-consuming (Xiang, Du, Ma, & Fan, 2017). Therefore, text mining technique was applied first to establish themes and then query search using content analysis technique (Cheng

& Edwards, 2019) via MAQDA Pro 12.0 software was conducted based on each theme to examine and compare the details. The content analysis supplements the text mining results by further exploring patterns, connections, and critical intricacies on the focal study objectives and research questions. The results were summarized below and reported in the sequence of Facebook, Twitter, and Instagram in Table 3.

4.1.2.1. Facebook results. Festivals. A major theme emerging among popular posts of Monin is related to festivals (around 45%). Customers connect special days, for example, Valentines’ Day, St. Patrick’s Day, with the drink products of Monin, such as coffee recipe and cocktail mix.

AVERAGE ENGAGEMENT RATE BY PUBLISHED HOUR (EDT)



AVERAGE ENGAGEMENT RATE BY PUBLISHED DAY (EDT)

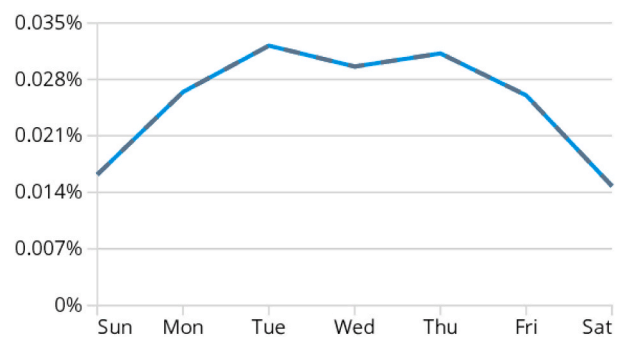
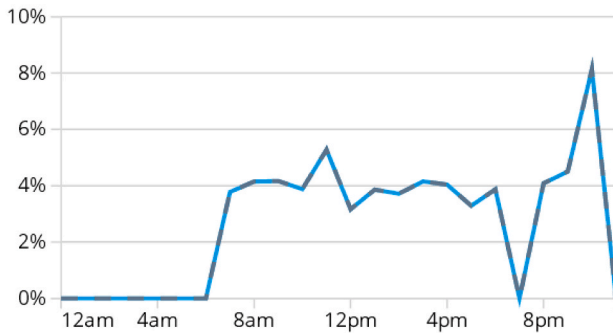


Chart 1. Trends of posts in Facebook.

AVERAGE ENGAGEMENT RATE BY PUBLISHED HOUR (EDT)



AVERAGE ENGAGEMENT RATE BY PUBLISHED DAY (EDT)

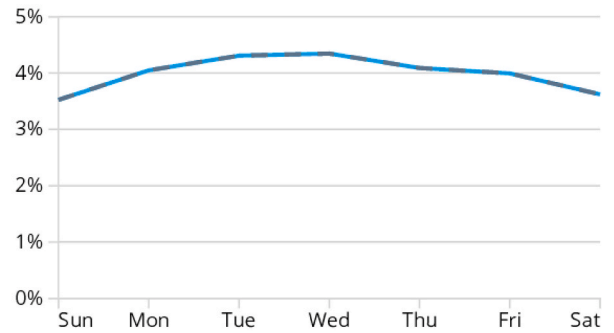
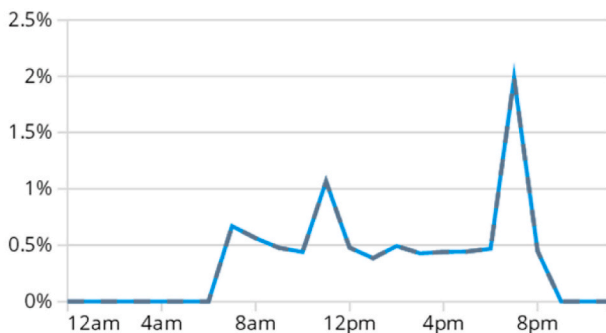


Chart 2. Trends of posts in Instagram.

AVERAGE ENGAGEMENT RATE BY PUBLISHED HOUR (EDT)



AVERAGE ENGAGEMENT RATE BY PUBLISHED DAY (EDT)

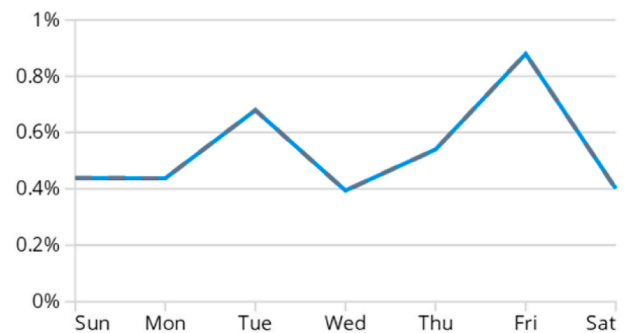


Chart 3. Trends of posts in twitter.

Furthermore, among Top 10 the most engaged posts during May 2017 to 2018 on Facebook, seven posts mentioned festivals.

Flavor. Another major theme about popular posts on Facebook is related to flavors (around 34%). The flavors about Monin’s products such as citrus, cookie butter, black berry, etc. were frequently mentioned in the posts.

Seasonal inspiration. The third theme identified through text mining is related to seasonal inspiration (around 21%). Seasons like Pumpkin months are mentioned along with the special drink flavors of Monin’s products.

4.1.2.2. Twitter results. Festivals and holidays. The theme of festivals and holidays was identified through text mining of Monin tweets (65%). Festivals or holidays like Valentines’ Day, Christmas, were mentioned with suggestive seasonal drink flavors such that peppermint mocha, citrus, honey, and herbs, etc. in the engaged posts.

Coffee. The theme on coffee-related products or flavors was mentioned frequently in the popular tweets (55%). Various coffee flavors and creative terms or phrases –such that National Coffee Days, Masala Latte, Coffee House, etc. were used in the engaged tweets.

Events. Another theme of events was identified among unstructured tweets (32%). Special events related to Monin products such as coffee flavor, cocktail mix, were frequently mentioned in the tweets. For example, Specialty Coffee Expo was used as a hashtag along with an invitation for attendance from Monin in the tweet.

4.1.2.3. Instagram results. Flavors. A major theme of flavors emerged in the mined texts on Instagram (85%). Flavors like watermelon, citrus, cookie butter, rich, nutty, and buttery, etc. were frequently used along with photos of Monin products in Instagram posts.

Week days. Another theme emerging in the unstructured data was week days, such as Tuesday, Sunday, Monday (25%). Given that Instagram posts are mainly about pictures; pictures were analyzed using MAXQDA Pro. 12 package. Instagram photos (e.g. Cocktails) were posted with a week day (Sunday night) to suggest suitable drinks for special time and occasions. Further, Monday morning was matched with freshly brewed coffee image in Instagram posts.

Finally, we noticed that hashtags were frequently used in the posts across the three social media platforms. Usually, posts with hashtags received a higher engagement rate compared with the rest of the posts.

Table 2
Sentiment analysis results and engagement metrics on Facebook, twitter, and Instagram.

	Facebook		Twitter		Instagram	
Number of posts	323		241		108	
Polarity classifications	Positive (sentiment scores: above 0.5)	Neutral (sentiment scores: equal 0.5)	Positive (sentiment scores: above 0.5)	Neutral (sentiment scores: equal 0.5)	Positive (sentiment scores: above 0.5)	Neutral (sentiment scores: equal 0.5)
Percentage	95%	5%	82%	18%	98%	2%
Number of likes	7200	386	1412	354	14,630	769
Number of comments	583	65	727	312	728	39
Number of shares	1500	174	623	416	16,000	166

Table 3
Representative examples of posts for qualitative analysis.

Social Media Channel	Themes	Selected Examples
Facebook	Festivals	“Did you know that May 25th is #National Wine Day? Celebrate with a delicious Black Cherry #Sangria!” (published date: May 24, 2017 1:47 p.m. UTC) “Don’t wait to fall in love with these #ValentinesDay recipes!” (published date: Feb 4, 2018 1:59 p.m. UTC)
	Flavor	“Pick your favorite Monin #pumpkin flavoring to create one of these delicious fall recipes! View & Download: http://bit.ly/pumpkin-seas-onrecipes ” (published date: Oct 18, 2017 8:09 p.m. UTC)
	Seasonal inspiration	“Cure those winter blues with a blast of seasonal citrus flavors! Learn More: http://bit.ly/monin-winter-citrus ” (published date: Jan 10, 2018 10:28 p.m. UTC) “SEASONAL INSPIRATION - Perk up with these cool & caffeinated creations! View & Download: http://bit.ly/seasonal-inspiration-coffee ” (published date: Sept 1 2017 1:45 p.m. UTC)
Twitter	Festivals and holidays	“Get in the #holiday spirit with a classic peppermint mocha! Visit Monin.com for #recipe inspiration. pic.twitter.com ... http://monin.com/ ” (published date: Dec 14, 2017 6:59 p.m. UTC) “Our team looks forward to spreading #holiday cheer every time the season rolls around! #AngelTree @SalArmyPinellas @SalvationArmyUS pic.twitter.com ...” (published date: Dec 7, 2017 11:44 a.m. UTC)
	Coffee	“Add authentic, natural flavor without sweetness or artificial ingredients to #coffeehouse favorites. Learn More: bit.ly ... http://bit.ly/MoninCafCollection ” (published date: Mar 2, 2018 3:15 p.m. UTC)
	Events	“Join us in Seattle for the @SpecialtyCoffee Expo! #SCE2018 pic.twitter.com/0qpWDHZJWC” (published date: Mar 27, 2018 12:42 p.m. UTC)
Instagram	Flavors	“100% Natural • 100% Delicious • 0% Added Sugar Click link in profile to learn more!” (published date: Jan 11, 2018 9:22 p.m. UTC) “Now you can add #natural flavor without sweetness to your favorite beverages and culinary applications.” (published date: Oct 5, 2017 5:32 p.m. UTC)
	Week days	“On Sundays we #Brunch” (published date: Feb 11, 2018 4:38 p.m. UTC) “In need of some #mondaymotivation? Try an all-natural fruit smoothie!” (published date: Jan 22, 2018 4:30 p.m. UTC)

Therefore, text mining of hashtags particularly was conducted to gain a better understanding of the influence of hashtag on customer engagement across Facebook, Twitter, and Instagram. As Table 4 shows, the top 10 hashtags used in Facebook posts that received the most engagement among customers were #recipes/recipe (1187 likes, 909 comments, 31 shares), #Coffee (1370 likes, 397 comments, 211 shares), and #giveaway (803 likes, 455 comments, 275 shares), followed by #NationalCoffeeMonth, #pumpkins, #CaramelAppleButter, #MondayMotivation, #IcedCoffee, #NationalCoffeeDay, and #blog. Interestingly, among the top 10 hashtags, recipes and special days (i.e. #NationalCoffeeDay) received much more shares than others, while coffee-related hashtags—#Coffee, #NationalCoffeeMonth, #pumpkins, #CaramelAppleButter, #IcedCoffee, received much more likes and comments than the rest of the posts.

Table 4 also listed the top 10 hashtags used in Twitter tweets by the total engagement metric (i.e. likes and retweets). #Coffee has been identified as the most popular hashtag in Monin’s tweets. #NationalCoffeeDay was listed as the second most popular hashtag while

#Recipe/Recipes were in the third place with 263 likes and 117 retweets. The rest of the hashtags in the top 10 list include #Giveaway, #ValentinesDay, #Monin, #blog, #holiday, #TampaBay, and #Fall. Consistent with Facebook hashtag patterns, recipes and special days (i.e. #ValentinesDay) in the tweets received more retweets than likes and Coffee-related hashtags play a predominant role in generating likes and retweets in Twitter.

Finally, Instagram hashtag ranking was performed, and the results were illustrated in Table 4: #mondaymotivation received the most likes and comments (705 likes and 19 comments), followed by #recipe and then #weekend. #CookieButter ranked number four in the top 10 list with 385 likes and 14 comments. The rest of the ranking in the list includes #summer, #cocktail, #nationalmojitoday, #natural, #icedcoffee and #blog.

4.1.3. Model

Through Phase I and Phase II, both quantitative and qualitative data were collected, and text mining analysis was performed on Monin’s posts on Facebook, Twitter, and Instagram. Per the results from both phases of data collection and analysis, a model showcasing the critical patterns of engaging social media post on the three major platforms, i.e. Facebook, Twitter, and Instagram, was developed (see Fig. 4).

4.2. Study 2 findings results

To test the relationship between social media engagement rate and monthly website bottle sales, a linear regression analysis was conducted. The results of regression analysis for the relationship between two variables were summarized in Table 5. According to the findings in Table 5, the proposed model was found to be statistically significant and had explanatory power ($F = 15.27$; $p < 0.001$). Therefore, the results indicated that there was a correlation between bottle sales and social media engagement rate. As the determination coefficient ($R^2 = 0.5045$) demonstrated in Table 5, it can be concluded that 50 percent of the variation in bottle sales was explained by engagement rate. The results also suggested that engagement rate was significant at the $p < 0.01$ level. Each month, the engagement rate indicated an increase of 61.35 in monthly bottle sales. In other words, the effect of the independent variables (i.e. social media engagement rate) on the dependent variable (i.e. monthly bottle sales) was 61.35 percent.

5. Conclusion and discussion

5.1. Conclusion summary

This study provides significant theoretical and practical implications. Theoretically, this study advances the literature on consumer social behavior social media use for food and beverage products. Furthermore, this study provides empirical evidence which illustrates how highly engaged social media posts drive firm performance. This finding moves the literature beyond the general assumption that social media marketing is critical to firm success as suggested by prior research. These results are useful to practitioners because they illustrate that generating content to drive consumer’s firm engagement on social media is more beneficial than simply possessing a large number of followers.

From Study 1, Phase I descriptive information about social media posts, several interesting insights were observed: A. Instagram contains the strongest engagement metrics, which suggests that other platforms like Facebook and Twitter are becoming less popular among consumers. B. Although the most common post type on Twitter is a photo, video generated the highest engagement rate among followers for Monin. C. Evening has been identified as the peak time for high engagement among followers across Facebook, Twitter, and Instagram. From Study 2, a relationship between bottle sales of new products launched on social media was found to be significant, highlighting the notion that

Table 4
Top 10 hashtags across Facebook, Instagram, and twitter.

Social Media Channel	hashtag	Engagement total	likes	comments	shares
Facebook	#coffee	1974	1366	397	211
	#giveaway	803	455	275	73
	#NationalCoffeeMonth	596	480	21	95
	#recipe	594	481	18	95
	#recipes	590	435	13	142
	#pumpkin	383	274	8	101
	#CaramelAppleButter	381	294	9	78
	#MondayMotivation	338	230	15	93
	#icedcoffee	305	248	14	43
	#blog	296	236	8	52
Instagram	#mondaymotivation	724	705	19	–
	#recipe	423	410	13	–
	#weekend	411	398	13	–
	#CookieButter	399	385	14	–
	#summer	377	368	9	–
	#cocktail	376	361	15	–
	#nationalmojitoday	365	355	10	–
	#natural	357	349	8	–
	#icedcoffee	356	349	7	–
	#blog	316	307	9	–
Twitter	#coffee	498	227	–	271
	#NationalCoffeeDay	380	136	–	244
	#recipe	252	177	–	75
	#Giveaway	248	103	–	145
	#ValentinesDay	240	98	–	142
	#Monin	139	98	–	41
	#blog	138	92	–	46
	#recipes	131	88	–	43
	#holiday	75	62	–	13
	#TampaBay	65	50	–	15

Engagement total = the sum of number of interactions (i.e. comments, shares, and likes) during a selected period time.

engagement rate among customers influences the total number of bottles sold.

5.2. Theoretical implications

This study contributes to the early literature in the field of relationship marketing by suggesting that traditional definitions of customer engagement and active participation should now be explained through the use of social media channels, which may serve as offensive marketing strategies (Vivek, Beatty, & Morgan, 2012). While different disciplines conceptualize customer engagement in different ways, this study affirms the point of view from an information systems technology standpoint, confirming that customer engagement represents the “level of intensity of customer participation with representatives of the organization and other customers” (Wagner & Majchrzak, 2007). This study supports previous research by suggesting that customers and firms work together to co-create value and bonds through use of social media (Sanz-Blas et al., 2019). This strengthening of the relationships promotes deeper relational bonds and stimulates sales and performance for firms. By using social media as the medium for encouraging sales, this study

Table 5
Regression results.

Source	SS	df	MS	Number of Obs = 17		
Model	2896842.7	1	2896842.7	F(1, 15) = 15.27		
Residual	2845066.24	15	189671.082	Prob > F = 0.0014		
Total	5741908.94	16	358869.309	R-squared = 0.5045		
				Adj R-squared = 0.4715		
				Root MSE = 435.51		
Sales	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Engagement_Rate	61.35555	15.69972	3.91	0.001	27.89239	94.81872
_cons	−644.2114	403.5877	−1.60	0.131	−1504.438	216.0154

deepens the definition and extends the level of customer participation to sales dollars.

Thus, the primary theoretical implication from this study highlights the social media engagement rate as a main contributor to value and consumer engagement purchasing behavior, extending the research by Cabiddu, De Carlo, and Piccoli (2014), Zhang et al. (2017); and Sanz-Blas, Bigne & Buzova, (2019). Further, as the task technology theory (Goodhue & Thompson, 1995) suggests, this proxies the fit between sales/marketing and the customer in information sharing, customer service and trust building, and social media capabilities, by increasing value by both customers and marketing. Finally, using social media technologies create many-to-many relationships between customers and organizations, establishing interactive dialogs and information sharing, and promoting co-created knowledge and value with customers.

Additionally, as proposed by Vivek et al. (2012), when a company provides a risk-free interaction such as a social media outlet, relevance for the companies’ product is enhanced, which is likely to lead to more engaged future customers. This study extends this notion by suggesting that the intensity of engagement may increase the sales of products that are marketed through social media channels, which helps to fill the gap in understanding what engagement means to marketing, sales and company stakeholders. Finally, this study fills potential gaps in relationship marketing literature by providing evidence of levels of agreement as to the exact nature of customer social media engagement through active participation and its role in marketing.

5.3. Practical implications

From a practical perspective, this study unequivocally demonstrates the importance of social media engagement rates to marketing and sales teams. By capturing higher percentages of engagement among social media followers, marketing and sales teams can capture more sales dollars from both existing and potential customers who choose to engage with the company. Thus, the goal of any firm should be to maximize exposure of products through relevant social media channels.

The results of the study contribute to the practitioner definition of customer engagement, suggesting that social media activities “facilitate repeated interactions that strengthen the emotional, psychological or physical investment a customer has in a brand” (Sedley, 2010). In this case, the interaction through the social media channels shows multiple shares, likes and comments as evidence of the interactions. Further, the sale of bottles was significantly attributed to the relative engagement rates for each channel.

The text mining procedures also revealed a critical formula of success for a highly engaged social media post. By focusing on generating content that drives high engagement and therefore purchasing power, a company can strategically use social media in a constructive way to benefit the company sales and marketing teams by positively contributing to firm performance through sales. For example, pictures of products provided higher engagement among users. Additionally, the results revealed that companies should manage posts according to certain times and days of the week (i.e. evening and weekends yielded

higher levels of engagement) in order to maximize engagement levels. Tailoring hashtags and images to the audience may also encourage high engagement, as well as the channel of delivery. For example, Instagram appeared to be a more popular modality, as it demonstrated the highest engagement metrics.

All of this suggests that Monin can strengthen the bonds and engagement between their brand and customers, and ultimately improve their online behavior by providing enticing emotional attachments to products to stimulate sales. Strategies to trigger active participation by customers could further strengthen the opportunity to create value by encouraging specific hashtags, posts and images during specific times during the day that have been denoted as “peak” viewing periods.

5.4. Limitations and suggestions for future research

This study has several limitations of note. First, the sample size was limited to one company and the social media postings of new product information, so findings may not be generalized across all food and beverage companies. Also, the study was limited to a review of only three types of social media channels, limiting the definition and use of engagement rate. Finally, the study did not examine the “butterfly effect” of the social media posts, which limits the understanding of the true power of social media. Future research in this area may include a deeper dive into the use of engagement rate by consumers who buy products and those who do not currently. Then, customer-brand strategies and relationships may be determined based on level of engagement and buying plans. Additionally, in order to enable practitioners to make full use of the engagement rate, future research should develop a scale and test its applicability across industries and contexts. Research can then determine which dimensions of engagement are most effective with different customer bases to enhance profitability through social media channels.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jhtm.2020.10.008>.

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