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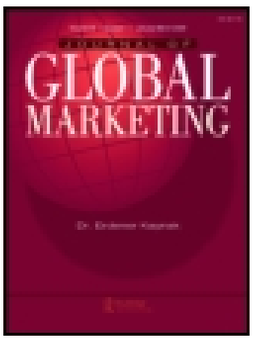

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RESEARCH ARTICLE

Factors Driving Social Media Engagement on Instagram: Evidence from an Emerging Market

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ABSTRACT

This study aims to investigate the effects of nonverbal information, verbal information, and content characteristics on social media engagement (i.e., likes and comments). The dataset comprised 486 posts, 373,235 likes, and 6,933 comments from 19 universities' Instagram accounts in Indonesia. The results confirm that publishing content in carousel formats or sharing achievement can improve likes. Also, embedding questions in posts or sharing informational content can enhance likes and comments. The findings further show that transactional posts (i.e., competition and promotion) reduce likes. Moreover, rational content (i.e., coverage and holiday) decreases both likes and comments. Theoretical and practical implications are discussed.

KEYWORDS

Social media; Instagram; customer engagement; social media marketing; content marketing

Introduction

Social media engagement (SME) (e.g., follows, likes, comments, shares) is substantial for brands. This is because it can positively influence a multitude of aspects of business performance. Evidence shows that customers who actively interact with businesses on social media channels build stronger relationships with the corresponding brands juxtaposed with those who avoid the interactions (Hudson et al., 2016). The engaged customers can further function as co-creators to assist brands in market analysis, suggestions, and product development (De Vries & Carlson, 2014; Kabadayi & Price, 2014). Beyond this, SME can affect brand attitude, brand equity, and purchase intention (Beukeboom et al., 2015). This eventually enables brands to gain sales (Saboo et al., 2016). Such facts exhibit that SME can provide brands with both tangible (e.g., market share, profits, and higher revenues) and intangible (e.g., innovative ideas for product advancement and reviews) benefits (Pansari & Kumar, 2017).

Given the significance of SME, understanding the factors driving it is imperative. This endeavor needs to rely on the notion of digital content marketing (DCM). According to Rowley (2008), DCM involves the processes of identification, anticipation, and dissemination of digital content, aiming to satisfy the respective consumers and obtain profit from them. This concept of DCM is highly relevant to social media marketing (SMM) (Järvinen & Taiminen, 2016). Brands first should identify and anticipate their consumers' wants and needs in order to deliver effective social media content and eventually attain their SMM objectives (e.g., increasing SME) (Li et al., 2021). Referring to the conceptualization of interactivity of Johnson et al. (2006), brands can discover consumers' social media content preferences utilizing the facets of nonverbal information and responsiveness. Nonverbal information is simply the media formats on social media (e.g., photos or videos). Responsiveness, on the other hand, may include verbal information (e.g., textual messages in captions or photos) and content with characteristics resonating with brands' targeted consumers.

Scholars have investigated the effects of nonverbal information, verbal information, and

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content characteristics on SME (e.g., Cvijikj & Michahelles, 2013; De Vries et al., 2012; Luarn et al., 2015; Sabate et al., 2014; Shahbaznezhad et al., 2021). Despite the efforts, several limitations still exist. To begin with, the findings of prior research are inconclusive. For example, Cvijikj and Michahelles (2013) and Sabate et al. (2014) confirmed that posts in a photo format enhance SME in the forms of likes and comments, while De Vries et al. (2012) contradicted the results stating that pictorial content has no significant effects on both metrics. Similarly, studies show contrasting evidence for posts with varying verbal information (De Vries et al., 2012; Schultz, 2017) and content characteristics (Cvijikj & Michahelles, 2013; De Vries et al., 2012; Dolan et al., 2019).

The contradictory findings appear maybe because those studies discussed SME in various countries where factors such as culture and geography diverge from one region to another. For instance, in the UK, Tafesse (2015) revealed that firms' informational content has no significant effects on likes. Conversely, far down in Australia, Dolan et al. (2019) claimed otherwise. Additionally, social media platforms play a role in SME. In their study, Coelho et al. (2016) proved that promotional posts significantly and insignificantly affect liking behavior on Instagram and Facebook, respectively. Shahbaznezhad et al. (2021) further evidenced that customers on Instagram are likely to like than comment, while those on Facebook are vice versa. Comparing Instagram and Facebook, the former is highly visual (Koivisto & Mattila, 2020), and the latter is text-based (Virtanen et al., 2017). These contradictions exhibit that SME is highly contextual. Accordingly, brands should avoid the "one-size-fits-all" approach for SMM (Virtanen et al., 2017). Businesses operating in different countries and implementing SMM on particular platforms require their own analysis and strategies. From a theoretical standpoint, research should uncover the types of nonverbal information, verbal information, and content characteristics on a social media platform within a single market. The findings may offer more holistic comprehension of SME.

An emerging market is the focus of this investigation. Preceding research all spotlighted brands from western or more developed countries such as Ireland (Moran et al., 2019), United Kingdom (Tafesse, 2015), and Spain (Sabate et al., 2014). Pertaining to SMM, consumers in emerging regions react differently than those in developed countries due to the conditions of device affordability, broadband access costs, and regulatory frameworks (Ilavarasan et al., 2018). Thus, results from prior investigations may be inapplicable for brands from outside the examined area. Scholars and brands need to develop specific SME approaches for emerging markets. These circumstances motivate this study to perform analyses of aspects influencing SME in an emerging market. This effort can expand SME scholarship beyond developed countries and provide brands in emerging regions with SME enhancement guidelines. This study also concentrates on Instagram. SME scholarship predominantly revolves around Facebook. Only two studies (i.e., Coelho et al., 2016; Shahbaznezhad et al., 2021) specifically inspected factors driving SME on Instagram, and they neglected the specific features (e.g., carousel format, IGTV, and short video) provided by the platform. SME literature discussing Instagram is underdeveloped. This is against the fact that the platform is one of the key players in the social media field. Instagram accumulates over one billion monthly active users (Statista, 2021d). Based on Instagram data in 2018 and 2019 (Instagram, 2021), 90% of the total users follow at least one business account, and 84% visit the platform for product discovery. Without thorough studies as guidelines, brands may fail to seize the immense opportunities conferred by Instagram.

In addition, the content characteristics variable in the extant SME literature requires further examination. Studies (e.g., Cvijikj & Michahelles, 2013; Dolan et al., 2019; Shahbaznezhad et al., 2021) assigned content characteristics into general categories (e.g., rational, interactional, transactional, entertaining) in their theoretical frameworks. In reality, topics of content characteristics can vary within a single category. For instance, in the rational content category, Instagram posts can involve various brand-extended thematic content such as holidays or coverage of events. These topics may have contrasting effects on SME.

Treating content as a general category (e.g., transactional) rather than a singular topic (e.g., reward and competition) may diminish the practicality of the results and theoretical understanding of factors affecting SME.

This research aims to bridge the current lacunae in the SME literature. To achieve the goal, this study advances the following research questions (RQ)1: What types of nonverbal information, verbal information, and content characteristics can affect SME in the context of Instagram in an emerging market? RQ2: Within a single category, does each topic of content characteristics have different effects on SME? This study offers two contributions. First, it extends Johnson et al. (2006) conceptualization of interactivity employing interaction theory (IT) in the context of social media. With this endeavor, this research specifically examined the facets of nonverbal information and responsiveness (i.e., verbal information and content characteristics) in the context of Instagram in an emerging market. Additionally, this study enriches SMM and SME literature on Instagram by discussing all the four media formats on the platform (i.e., photo, short video, IGTV, and carousel). This SMM analysis focusing on Instagram and an emerging market answers the plethora of calls from extant SMM, DCM, and SME scholarship (e.g., Dwivedi et al., 2020; Ilavarasan et al., 2018; Li et al., 2021; Voorveld, 2019). Furthermore, this research improves the theoretical and empirical frameworks of SME by evidencing whether, within one single category, content characteristics can have contrasting effects on SME. Second, practically, the results from this study can guide brands to implement effective SMM, DCM, and SME strategies.

Literature review

Customer engagement and SME

In traditional marketing, customer engagement is a psychological process involving affective, cognitive, and behavioral responses (Brodie et al., 2011; Hollebeek et al., 2014) in which customers convert into brand loyal (Bowden, 2009). Within this context, customers engage with organizations through copious means such as media (Calder et al., 2009), service or product offerings (Brodie et al., 2011), as well as events and activities (Vivek et al., 2012). In the social media world, customer engagement is highly consequential for companies (Nadeem et al., 2015). In this sphere of social media, customer engagement is the result of firm-customer (also customer-customer) linkage and interaction in social media (Harmeling et al., 2017) focusing beyond purchase (Dolan et al., 2016). Despite such a perspicuous definition, previous scholars deployed different operationalizations in their customer engagement studies on social media. This includes audience response (Tafesse, 2015), engagement metrics (Coelho et al., 2016), social media engagement (Moran et al., 2019), customer engagement (Dolan et al., 2019), online engagement (Cvijikj & Michahelles, 2013; Luarn et al., 2015), consumer engagement (Schultz, 2017), and popularity (L. De Vries et al., 2012; Sabate et al., 2014). This condition may confound future studies and eventually limit the advancement of social media marketing scholarship. In addition, as explained above, the dissimilarities between customer engagement in traditional marketing and the social media sphere are evident. This study argues that the use of customer engagement to explain both contexts will create ambiguity. To resolve these problems, this study suggests current and future research to utilize *social media engagement* as the operationalization when analyzing customer engagement on social media. It is specific and contextual and hence can eliminate ambiguity and confounding effects.

Furthermore, extant works of literature also still debate the specific SME construct. In their research, Maslowska et al. (2016) advanced three phases of SME: observing (e.g., viewing content), participating (e.g., commenting on content posted), and co-creating (e.g., contributing to product advancement). Diversely, Kumar et al. (2010) divided SME into transactional (i.e., purchasing the products or services) and non-transactional (i.e., referring, sharing, commenting, and influencing). On the other hand, Muntinga et al. (2011) proposed SME into three levels: consuming (e.g., reading content and following), contributing (e.g., commenting and rating), and creating (e.g., user-generated content).

Li et al. (2021) argued that SME is the outcome of an iterative and dynamic process, thus resulting in difficulties in specifying the precise phase from participating to creating. As such, rather than referring to the assessments as mentioned earlier, they concurred with the SME construct proposed by Dolan et al. (2016). In the measurement, Dolan et al. (2016) view SME as a continuum. The first level of the construct intensity is passive or least active (i.e., consuming). In this stage, customers consume content without any active contribution. The behaviors include viewing photos or clicking to read more about the content. The second level is moderately active (i.e., contributing), where customers contribute to existing content, but the efforts are minimal (e.g., liking, sharing brand-related posts). The last level is highly active (i.e., creating). In this phase, customers initiate active contributions relating to brand-related posts (e.g., commenting, uploading brand-related videos).

Literature examining factors driving SME on Instagram of Shahbaznezhad et al. (2021) agreed with Li et al. (2021) to utilize the SME construct of Dolan et al. (2016). Likewise, this research measures SME on Instagram following the guidelines of Dolan et al. (2016), involving the active engagement behaviors of contributing (i.e., liking) and creating (i.e., commenting). This study argues that likes and comments are valuable and valid as output parameters of SME on Instagram. Numbers of likes and comments are publicly visible on each of a brand's Instagram posts. Once the content is popular, it is apparent. It will form social proof (De Vries, 2019). Social proof is a concept that when a majority of people like things, there is an inference that those things are good (Cialdini, 1987). Because people follow the crowd's opinion (De Vries, 2019), more consumers will like, comment, or both on the respective popular posts (Moran et al., 2019; Sabate et al., 2014; Tafesse, 2015). Logically, this also applies to the opposite situation. When a post receives fewer likes and comments, it is evident. It shows that the content is irrelevant and will fail to elicit more SME. From a brand's standpoint, numbers of likes and comments can inform the efficacy of its SMM and DCM strategies. If the content is viral, it shows that its disseminated content is relevant for its consumers (Salo et al., 2011). If the numbers of likes and comments are low, a brand should reflect and restrategize. In addition, preceding SME research on Instagram (Coelho et al., 2016; Shahbaznezhad et al., 2021) also used likes and comments. From a theoretical development perspective, consistency in the usage of output parameters allows this study to compare results for generalization purposes.

Research contexts

This study investigates factors driving SME within three contexts. First, it concentrates on Instagram. Despite being one of the key players in the social media sphere (Statista, 2021d), studies analyzing SME on the platform remain limited. As shown in Table 1, only Coelho et al. (2016) and Shahbaznezhad et al. (2021) focused on Instagram. The former was in 2016. Between that year and the time of the writing of this study, Instagram features have been evolving. For example, when Coelho et al. (2016) collected the data, Instagram restricted its users to post content in a video format for only up to fifteen seconds long. In 2021, individual users and businesses can post their videos on Instagram for up to one minute. The social media channel even allows its users to post longer videos in the IGTV format or add more videos in carousel posts. In the case of Shahbaznezhad et al. (2021), their study neglected the IGTV and carousel formats. This research updates those prior studies on Instagram by appending IGTV and carousel content formats.

Second, the SME analysis is within an emerging market context. Extant research stated that social media marketers should consider distinctions in geographical, cultural, demographical, and consumer behavioral contexts when implementing SMM strategies (Abou-Elgheit, 2018; Dwivedi et al., 2020). Success in developed nations is no guarantee for another triumph in developing countries. This is evident from the example provided by Ilavarasan et al. (2018). Old Spice's TV advertising campaign driven by YouTube and Twitter starring Mustafa magnified the brand's reach and sales in the US in 2010. Adopted in India, later featuring Milind Soman, the strategy failed. Developing countries are

Table 1. A summary of contexts and data collection procedures from studies investigating factors driving SME.

Author(s)	Platform	Country	Sector	Total Post	Number of Brands	Data Collection Duration
Moran et al. (2020)	Facebook	Ireland	Media	757	1	15 weeks
Sabate et al., (2014)	Facebook	Spain	Travel Agency	164	5	1 month
Cvijikj and Michahelles, (2013)	Facebook	Global Brands from Developed Countries	Mixed	5035	100	2 months
De Vries et al., (2012)	Facebook	International	Mixed	355	11	9 months
Schultz, (2017)	Facebook	Global Brands from developed countries and European brands	Mixed	798	13	7 weeks
Tafesse, (2015)	Facebook	UK	Automotive	191	5	6 weeks
Luarn et al., (2015)	Facebook	Global brands from developed countries	Mixed	1030	10	2 months
Dolan et al., (2019)	Facebook	Australia	Wine	2236	12	12 months
Peruta and Shields, (2018)	Facebook	US	University	5932	66	2 months
Shahbaznezhad et al., (2021)	Facebook and Instagram	New Zealand and Australia	Airlines	1038	2	12 months
Coelho et al., (2016)	Facebook and Instagram	Not Available	Mixed	1849	5	8 months

challenging for social media marketers (Kim et al., 2019). Apart from culture and consumer behavior, factors such as device affordability, broadband access costs, and regulatory frameworks also hinder SMM in the developing world (Ilavarasan et al., 2018). Ilavarasan et al. (2018) further claimed that the available SMM strategies are for rich countries with better-wired consumers. Brands in developing countries or global businesses need to formulate specific emerging markets SMM frameworks to achieve success.

Third, the sector examined is higher education. The decision to choose the particular industry is due to practical and theoretical rationales. Practically, university offerings are divergent from those conventional products and services. University programs possess the service attributes of non-ownership, inseparability, and intangibility (Lowrie, 2007). Prospective students acquire no opportunities to try a program before enrollment, and after being admitted to their target universities, they further have to dedicate 3 to 4 years and spend financial resources to obtain a degree (Wong et al., 2018). With these characteristics, available SME findings from prior research, as displayed in Table 1, are inapplicable for SMM strategies in higher education. Even insights from SME research within the higher education context of Peruta and Shields (2018) are irrelevant. The investigation merely discussed the universities in the US. In SMM, consumers in developed and emerging markets are disparate (Dwivedi et al., 2020; Ilavarasan et al., 2018). This is due to culture, financial situations, and language factors (Ilavarasan et al., 2018). As a result, SME behavior of students in the US and other emerging markets (e.g., Indonesia) may be dissimilar. Peruta and Shields (2018) also inspected SME on Facebook. In terms of age, the platform is no longer relevant for students. Higher education social media marketers should invest more in analyzing Instagram rather than Facebook. Instagram users are young and within the age range of school and university students compared to Facebook, who are older (Jackson, 2019). Furthermore, Peruta and Shields (2018) collected data both from public and private universities. These two types of education providers are different. People favor public universities more than their private equivalent due to their capabilities in providing better education and lower fees (Akareem & Hossain, 2012; Anabila et al., 2020). This implies that private universities require more marketing efforts to attract students. Hence, utilizing social media as a marketing tool is more relevant, and the exposure of a winning strategy (e.g., DCM and SME) can be beneficial for those involved in the industry. Theoretically, the limitations of Peruta and Shields,' (2018) study require further corroboration to expand SME literature. Also, as exhibited in Table 1, prior research investigated factors influencing SME in a travel agency (Sabate et al., 2014), media (Moran et al., 2019), automotive (Tafesse, 2015), winery (Dolan et al., 2019), airline provider (Shahbaznezhad et al., 2021), and mixed category (Cvijikj & Michahelles, 2013; De Vries et al., 2012; Luarn et al., 2015; Schultz, 2017) firms.

Research has urged scholars to investigate SMM and SME in other industries and countries (Dwivedi et al., 2020; Li et al., 2021; Lin et al., 2017; Moran et al., 2019; Ngai et al., 2015). Dwivedi et al. (2020) argue that efforts to study SMM in other sectors and countries will improve theoretical and empirical knowledge of SMM, especially in the topic of SME.

This study focuses on Indonesia as a representation of emerging markets. SMM literature in emerging regions predominantly discussed China and India (Cao et al., 2018; Chatterjee & Kumar Kar, 2020; Kujur & Singh, 2018; Lu, 2018; Schaefer et al., 2010; Shih et al., 2014). Some even investigated SMM practices in Iran (Farzin & Fattahi, 2018), Saudi Arabia (Abed, 2018), South Africa (Dlamini & Johnston, 2018), and Egypt (Abou-Elgheit, 2018). Despite existing (e.g., Kusumasondjaja & Tjiptono, 2019), SMM discussion in Indonesia remains sparse and requires further exploration. The country is a giant with a population size of 270.2 million (Statista, 2021b). Among the figure, 171.26 million are internet users (Statista, 2021c). Indonesians also are active on social media. There are 85 million people in Indonesia using social media, and they spend their time on average 3 hours and 14 minutes daily on social media platforms (Statista, 2021a). Understanding SME behavior in Indonesia is essential both from theoretical and practical standpoints. From the theoretical perspective, this study answers the calls from preceding works of literature to examine SMM and SME in other countries, especially in emerging nations (Dwivedi et al., 2020; Ilavarasan et al., 2018). This effort contributes to providing a wider interpretation of how consumers perform SME in an emerging market such as Indonesia. This research also supports developing robust theoretical platforms for SMM and SME. In the practical viewpoint, this investigation generates guidelines for Indonesian universities in enhancing their SME for effective SMM strategies. This is especially beneficial for private universities that lack government funding and need competitive strategies to survive the competition (Wong et al., 2018). In the case of global brands, Indonesia has just opened its door for foreign universities. Beginning in October 2021, Monash University from Australia will be the first overseas university to operate in Indonesia (Monash University, 2020). This signifies opportunities for foreign universities intending to expand their offerings. Insights from this research may guide those overseas universities in capturing the immense prospects of the higher education market in Indonesia.

Theoretical framework and hypotheses

Interaction theory

Extant research (Cvijikj & Michahelles, 2013; Dolan et al., 2019; Tafesse, 2015) predominantly applied Uses and Gratification Theory (UGT) when assessing factors affecting SME. UGT is an approach utilized to understand why people search for and use particular media to satisfy their particular needs (Katz, 1959). Implemented in social media literature, the theory can only explain why people deploy social media. It cannot explicitly elucidate why people engage with social media. People can use a social media platform (e.g., Instagram) to satisfy their needs (e.g., for entertainment). Despite the utilization and satisfaction experienced, there is no guarantee that people will perform active engagement (e.g., liking or commenting on entertaining Instagram content) (Syrdal & Briggs, 2018). Instagram users may only view and enjoy the content. In addition, preceding studies (De Vries et al., 2012; Luarn et al., 2015; Moran et al., 2019; Sabate et al., 2014; Shahbaznezhad et al., 2021; Tafesse, 2015) incorporated Media Richness Theory (MRT) in the scrutinization whether media format can affect SME. This study argues that the approach is also impertinent. MRT refers to the capacity of data to carry information (Daft & Lengel, 1986). Communication media providing more complex data are rich, and those less are low in richness. The richer the media, the more it can stimulate various senses and provide better understanding (Steuer, 1992). One should note that understanding unnecessarily corresponds to a willingness to engage or interact. For instance, users may understand an Instagram post disseminating information about a promotion. Despite the

understanding, they may only observe and resist actively engaging (e.g., liking). The underlying concept of DCM is to deliver relevant content in place of an understandable one. With this rationale, engaging with content is more about relevancy rather than understanding.

This research proposes IT as an approach to understanding factors driving SME. IT has its origin from (behavioral) IT in sociology (Goffman, 1967), referring to mutual or reciprocal action. This IT further developed into the concept of interactivity in the context of advertising on a website. In their empirical study, Johnson et al. (2006, p. 41) tested Goffman's (1967) IT and conceptualized interactivity as "the extent to which an actor involved in a communication episode perceives the communication to be reciprocal, responsive, speedy, and characterized by the use of nonverbal information." Straightforwardly, this conceptualization explains that due to the usage of nonverbal information and an individual's perception of reciprocity, responsiveness, and speed of response in communication, that respective individual may actually interact with the other party. Reciprocity corresponds to where communication allows mutual action. Translated into interactive technology, as illustrated by Johnson et al. (2006), if a company's website provides links or click buttons that allow consumers to interact, then the website is high in reciprocity. For responsiveness, it depicts a communication message's relevancy, appropriateness, and capability in sustaining the continuity of interaction. In terms of speedy or speed of response, it represents the perceived ability of communication participants to respond immediately or without delay. Regarding nonverbal information in interactive technology, it denotes the channels or media utilized to communicate information. In this conceptualization, Johnson et al. (2006) stated that the higher the richness of nonverbal information, reciprocity, responsiveness, and speed of response, the higher is the perception of interactivity, and therefore, the higher is the possibility of a user may actually respond to interactive technology (Johnson et al., 2006).

Social media platforms provide interactive features (e.g., links and click buttons). This signifies that they possess the reciprocity facet. When users interact with social media, the response is immediate. For example, if a user clicks the like button on an Instagram post, the platform responds immediately by showing a red heart icon and increasing the like count. This means that social media applications are speed in response. Social media users can further communicate by disseminating content applying various media formats (e.g., texts, photos, and videos) (Syrdal & Briggs, 2018), evidencing the use of nonverbal information. Additionally, messages or posts on social media can be relevant, appropriate, and capable of sustaining the continuity of a communication event. This condition proves that social media allow content to be embedded with the responsiveness facet. Connecting these social media features with Johnson et al. (2006) interactivity conceptualization, due to the usage of nonverbal information and a user's perception of reciprocity, responsiveness, and speed of response in communication on social media; that respective user may actually interact with the other user on the respective social media.

As a reminder, however, in the context of SMM, social media platforms (e.g., Facebook and Instagram) are the ones responsible for designing the speed of response. Social media marketers have no capabilities in changing or manipulating the facet. Also, unlike Facebook, the level of reciprocity on Instagram is low (e.g., there is no feature for embedding links in a post). Accordingly, this study only focuses on the facets of nonverbal information and responsiveness. In addition, the review of extant SME scholarship for hypotheses development refers to Table 2. Given that SME is highly contextual, this research merely scrutinizes the SME literature deploying a single sector. The approach may help in generating more insightful discussion. Figure 1 exhibits the conceptual framework in this study.

Nonverbal information

Research accentuates that interactive communication requires both verbal and nonverbal information (Zack, 1993). In the Internet world, this nonverbal information denotes the usage of photos, videos, sounds, and other channels to convey

Table 2. A summary of findings from studies investigating factors driving SME within a single sector.

Author(s)	Sector	Effects on SME*
Nonverbal Information		
Moran et al. (2020)	Media	Photo has significant and positive effects on likes and comments Video has significant and positive effects on likes and comments
Sabate et al., (2014)	Travel Agency	Photo has significant and positive effects on likes and comments Video has significant and positive effects on likes Video has no significant effects on comments
Cvijikj and Michahelles, (2013)	FMCG	Photo has significant and positive effects on likes and comments Video has significant and positive effects on likes Video has no significant effects on comments
Tafesse, (2015)	Automotive	Photo and video formats have no significant effects on likes
Peruta and Shields, (2018)	University	The usage of photos (compared to videos and other formats) in content disseminating overall informative, campus events, research/scholarly/creative, academic events, and student achievements can increase SME
Shahbaznezhad et al., (2021)	Airlines	Photo content encourages consumers to like Video content encourages consumers to comment
Responsiveness in the Verbal Information		
Moran et al. (2020)	Media	CTA to click/like has significant and positive effects on likes and comments CTA to comment on questions has significant and positive effects on likes and comments
Tafesse, (2015)	Automotive	Questions, CTAs, and contests have significant and negative effects on likes
Peruta and Shields, (2018)	University	Posts with CTAs generate lower SME compared to those without CTAs
Responsiveness in the Content Characteristics		
Cvijikj and Michahelles, (2013)	FMCG	Content with entertainment has significant and positive effects on likes and comments Content with information has significant and positive effects on likes and comments Content with remuneration has significant and negative effects on likes Content with remuneration has significant and positive effects on comments
Tafesse, (2015)	Automotive	Content with information has no significant effects on likes Content with entertainment has significant and positive effects on likes
Dolan et al., (2019)	Wine	Content with information, remuneration, relation, and entertainment have significant and positive effects on likes Content with information, remuneration, relation, and entertainment have no significant effects on comments
Peruta and Shields, (2018)	University	Content of news related, athletics, school spirit, promotion, and admissions can increase SME Content of overall informative, campus events, research/scholarly/creative, academic events, and student achievements can decrease SME
**Shahbaznezhad et al., (2021)	Airlines	Rational content obtains more likes than comments Transactional content increases likes and decreases comments

information (Johnson et al., 2006). The richness of nonverbal information may reflect the interactivity in a communication (Burgoon et al., 1999). This research investigates the effects of nonverbal information on SME (i.e., likes and comments) on Instagram. In the platform, the media formats available are photos, one-minute or less video (short video), Instagram TV (IGTV), and carousel. IGTV on Instagram feed can show a video of up to 60-minute long. On the other hand, a carousel is a posting format containing up to ten images or videos (or a combination of both). Instagram users can swipe or click left to view a carousel post. In their research, Shahbaznezhad et al. (2021) only examined photo and video posts. This study extends the investigation of Instagram by utilizing all four formats.

In interactive technology, excessive provision of nonverbal information (e.g., using photos, videos, and music all at once in a post) can cause cognitive overload, and too complex (e.g., photos and illustrations filled with multiple colors and shapes) of nonverbal information can distract users (Johnson et al., 2006). Voorveld et al. (2018) signified that each social media platform has its own audience, culture, and infrastructure. Due to this nature, in the context of social media, it is difficult to predict what degree of richness in nonverbal information is the most appropriate to stimulate engagement. One audience may prefer photos, while the others may favor content with videos and music. A group of users may engage more with simple posts, whereas the others may interact with posts illustrated in complex and expressive artworks. This situation may cause the inconclusive findings concerning the nonverbal information aspect in SMM scholarship.

Regardless of the sectors, as presented in Table 2, previous research evidenced that content in a photo format enhances both likes and comments. However, when content involves videos, the results are inconsistent. Cvijikj and Michahelles (2013) analyzed FMCG companies, and they revealed that video posts significantly

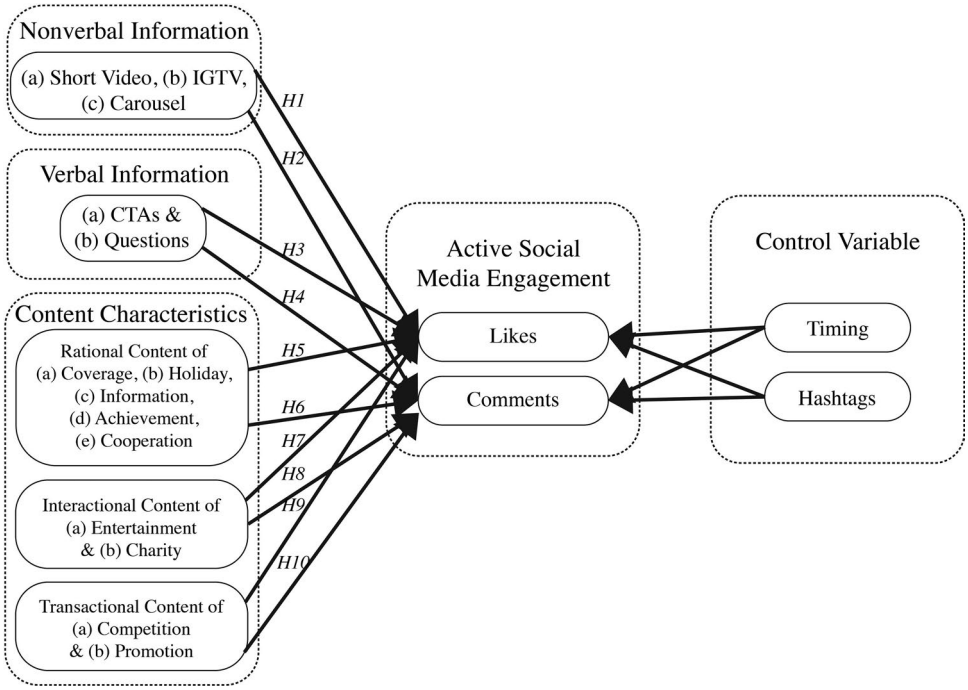

Figure 1. Conceptual Framework..

and positively increasing likes but insignificantly influencing comments. Sabate et al. (2014), focusing on the travel agency sector, repeated Cvijikj and Michahelles,' (2013) research and unveiled similar findings. Tafesse (2015), using the automotive industry as a sample, proved that video content has no effects on likes. In the airline industry, Shahbaznezhad et al. (2021) claimed that video content promotes commenting behavior. On the other hand, in a media firm, Moran et al. (2019) found that video posts have significant and positive effects both on likes and comments.

In the university sector, Peruta and Shields (2018) argued that pictorial content can generate more SME compared to content in video and other formats, particularly in the content categories of overall informative, campus events, research/scholarly/creative, academic events, and student achievements. They incorporated proportional engagement as SME parameters. The term refers to total numbers of Facebook interactions (i.e., likes, comments, and shares) divided by total fans (Peruta & Shields, 2017). In other words, the findings from Peruta and Shields,' (2018) research confirmed that, within the higher education industry, posts in a photo format can enhance SME, and other formats can reduce SME. Because this research investigates factors affecting SME in the university sector, following Peruta and Shields (2018), this study hypothesizes that:

H1. Content with nonverbal information of (a) short video, (b) IGTV, and (c) carousel formats generates fewer likes than the one in a photo format.

H2. Content with nonverbal information of (a) short video, (b) IGTV, and (c) carousel formats generates fewer comments than the one in a photo format.

Responsiveness in the verbal information

Responsiveness denotes a communication message's relevancy, appropriateness, and capability in sustaining the continuity of interaction (Johnson et al., 2006). A communication rich in responsiveness can satisfy the need of the other party and therefore sustaining the exchange. In social media, verbal information is the textual messages written either on nonverbal information (e.g., photos and videos) or captions. To be responsive in this context then, following the conceptualization of Johnson et al. (2006), verbal information on social media

content must be relevant, appropriate, and capable of sustaining the continuity of interaction. This means that if a brand aims to elicit likes, then the pertinent brand may ask its followers to like its content. If the objective is to generate comments, the brand may invite its followers to comment on its posts. With a similar rationale, if a brand asks its followers to like, it may be challenging to obtain comments. Beyond the message itself, this responsiveness may also relate to consumers' tolerance of the verbal information on content. Based on Weiger et al. (2018) findings on online advertising, if a brand's verbal information requires consumers to interact excessively, it will lower consumers' behavioral intentions. This, then, will diminish consumers' engagement.

Social media marketing literature has investigated the effects of textual messages on SME (e.g., Moran et al., 2019; Tafesse, 2015). The variables may include Call-to-Actions (CTAs) and questions. Tafesse (2015) proved that questions negatively affect likes. Given the logic of Johnson et al. (2006) responsiveness, this is reasonable. The verbal information is low in responsiveness because it is irrelevant and inappropriate. A question invites consumers to comment, either explicitly or implicitly. Thus, it will discourage consumers from liking the content. Interestingly, however, Moran et al. (2019) revealed that all the CTAs positively influence likes and comments regardless of the types of verbal information. For example, an invitation to like causes consumers to both like and comment on the respective posts. Likewise, CTAs to comment both significantly increases likes and comments. Moran et al. (2019) stated that their findings indicate a rising tide of engagement. That connotes any invitation to encourage consumers to engage, leading to enhancement in all SME forms. There is a reminder, however. Moran et al. (2019) expressed that their research was within the entertainment and media industry. Brands in the sector are highly active in creating and disseminating content to enhance SME. Media and entertainment brands also offer more hedonic products or services. Those businesses selling utilitarian offerings such as universities may have consumers performing dissimilar SME.

Peruta and Shields (2018), utilizing universities as samples, unveiled that content with CTAs generates lower SME than without CTAs. There is an implication that university students resist engaging with content encouraging them to perform SME. This may be even worse for content containing questions. More than CTAs, posts embedded with questions require students to think and actually engage by writing answers. This is pertinent to the findings of Weiger et al. (2018). CTAs and questions may overwhelm students, and hence they refuse to like and comment on content comprising CTAs and questions. These all indicate that the more verbal information requesting students to engage, the less is their actual SME. In other words, verbal information in a plain description is the most appropriate to drive SME. Accordingly, because the current investigation focuses explicitly on the university sector, this research hypothesizes that:

H3. Content containing verbal information of (a) CTAs and (b) questions generates lower likes compared to the posts only containing descriptions.

H4. Content containing verbal information of (a) CTAs and (b) questions generates lower comments compared to the posts only containing descriptions.

Responsiveness in the content characteristics

Responsiveness also relates to social media content characteristics. Research demonstrates that social media users implement social media applications in their daily lives for the reasons of entertainment, identity projection/formation, social interaction, economic reward, and information acquisition (Hossain et al., 2019; Y. Kim et al., 2011; Muntinga et al., 2011; Tsai & Men, 2013). These users' objectives underline the significance of DCM strategies on social media. DCM can be in the form of brand-extended and brand-extended thematic content. The former is purely brand-related content (e.g., product and promotion) that may satisfy the needs for economic reward and information seeking. On the other hand, the latter is brand-unrelated but relevant to consumers (e.g., lifestyle and societal issues) (Taiminen & Karjaluoto, 2017) that may gratify those consumers searching for

entertainment and social interaction. Pertaining to this, brands should understand their consumers' content preferences. The content characteristics that are valuable for a group of consumers may be pointless for others (Li et al., 2021). These efforts to comprehend consumers' needs and wants may be arduous. However, brands should note that relevant and alluring DCM will gain virality on social media (e.g., increased SME), leading to effective SMM (Salo et al., 2011).

Scholars have examined the effects of content characteristics on SME (e.g., Cvijikj & Michahelles, 2013; Dolan et al., 2019; Shahbaznezhad et al., 2021; Tafesse, 2015). Studies on Facebook with divergent sectors provide contradictive findings. While Cvijikj and Michahelles (2013) evidenced that informational posts have significant and positive effects both on likes and comments, Tafesse (2015) and Dolan et al. (2019) proved the significance is merely on likes. In addition, Cvijikj and Michahelles (2013) revealed that remunerative content has significant and negative effects on likes; and significant and positive effects on comments. On the other hand, Dolan et al. (2019) found that content containing remuneration has significant and positive effects on likes; and insignificant effects on comments. For entertaining posts, while Cvijikj and Michahelles (2013) proved significant and positive effects for both on likes and comments, Dolan et al. (2019) and Tafesse (2015) showed the significance is only for likes. In the university sector, Peruta and Shields (2018) found that content of news related, athletics, school spirit, promotion, and admissions increase SME. Conversely, content of overall informative, campus events, research/scholarly/creative, academic events, and student achievements decrease SME.

Content characteristics investigation on Instagram remains scarce. Two studies available are from Coelho et al. (2016) and Shahbaznezhad et al. (2021). Among those two, only the latter focused on a single sector. Shahbaznezhad et al. (2021) discussed the airline industry's content characteristics. The study categorized content into rational (also called functional, informational, educational, or current event), interactional (e.g., brand community, cause-related, employee, experiential, customer relationship), and transactional (also called sales, promotion, remunerative). One of the research objectives was to investigate the role of Instagram as a platform to moderate the relationships between content types and SME. The discovery showed that rational content on Instagram obtains more likes than comments. Subsequently, Instagram has no moderating role in stimulating SME through emotional content. Lastly, although transactional content on Instagram promotes more likes, the content decreases comments.

Shahbaznezhad et al. (2021) categorized content characteristics into rational, interactional, and transactional. However, because in social media content marketing, there is an emphasis on providing relevant content and appropriate to customers' interest (Li et al., 2021); along with the general category, following Schultz (2017), this study also fractionates the content into specific topics. Because this research assesses the higher education industry, thus the content characteristics correspond with the typical posts in the sector. In the rational type, there are product, coverage, holiday, information, achievement, and cooperation. In the interactional type, there are entertainment and charity. In the transactional type, there are competition and promotion. Referring back to Peruta and Shields,' (2018) discoveries in the higher education sector, they found that rational content (e.g., overall informative, campus events, academic events, and student achievements) lowers SME. On the other hand, interactional (e.g., athletics and school spirit) and transactional (e.g., promotion and admission) enhance SME. Considering both the general categories of Shahbaznezhad et al. (2021) and Peruta and Shields,' (2018) findings, there are indications that all the topics in the rational content diminish SME, and all the topics in the interactional and transactional posts stimulate students to engage. As this investigation is also within the higher education sector as of Peruta and Shields (2018), this study expects similar findings, hence:

H5. Rational content with the topics of (a) coverage, (b) holiday, (c) information, (d) achievement, and (e) cooperation has negative effects on likes.

H6. Rational content with the topics of (a) coverage, (b) holiday, (c) information, (d) achievement, and (e) cooperation has negative effects on comments.

H7. Interactional content with the topics of (a) entertainment and (b) charity has positive effects on likes.

H8. Interactional content with the topics of (a) entertainment and (b) charity has positive effects on comments.

H9. Transactional content with the topics of (a) competition and (b) promotion has positive effects on likes.

H10. Transactional content with the topics of (a) competition and (b) promotion has positive effects on comments.

Control variables

This study controls hashtags. The feature has a function to group posts with a similar theme. This facilitates users to search posts by subject and increases the likelihood for social media content to be found. As a result, hashtags may enhance SME (e.g., follows, likes, and comments) (De Vries, 2019). Schultz (2017) has confirmed that hashtags have significant and positive effects on likes and comments. In addition, this research also controls posting timing. Social media allows brands to share their content any time, day or night, weekend or weekdays (Moran et al., 2019). Despite such schedule flexibility, customers may respond and engage with brands' posts differently. This is because customers may have more or less time to consume, process, and engage with brand posts during particular times (De Vries et al., 2012; Sabate et al., 2014).

Research methods

Sampling and data collection

As displayed in Table 1, the total posts, number of brands, and data collection of each previous research vary. This shows that the rule for data collection of SME is nonexistent. Data of this study corresponded to the Indonesian university rank based on social media followers provided by Lifepal (2020). There were 20 private universities on the list. This research collected and recorded Instagram posts of each private university from May 1, 2020, to May 31, 2020. There was one university with zero Instagram activity during this period, resulting in only 19 universities being investigated. The final dataset comprised 486 posts, 373,235 likes, and 6,933 comments.

Concerning ethics in data collection, this study has adhered to general practices. Ravn et al. (2020), Markham and Buchanan (2012), Zimmer (2010), and Townsend and Wallace (2016) advise researchers to understand the sensitivity of the data they collect and the reasons why the users they study are on social media. The sample in this research (i.e., Instagram accounts of private universities) resembled Case Study 5 in Townsend and Wallace (2016) guideline. The private universities utilize Instagram as a marketing communication tool, expecting large numbers of people to engage and improve their specific marketing objectives. Hence, according to Townsend and Wallace (2016), the data are unlikely to be sensitive and thus are permissible for collection and analysis. Also, following Zimmer (2010), this study implemented anonymization strategies to protect the data privacy of the samples.

Procedures and coding variables

This research employed a content analysis method to operationalize the independent variables of nonverbal information, verbal information, and content characteristics. Krippendorff (2013) affirmed that the content analysis approach is an exclusive, exhaustive, and enlightening process. As conducted by previous studies (Shahbaznezhad et al., 2021; Tafesse, 2015), the procedure started by developing custom dictionaries to facilitate data collection. For nonverbal information, the posts were apparent. They were either in the form of a photo, short video, IGTV, or carousel. However, for verbal information and content characteristics, the dictionaries must explain it unambiguously so that the process captured precise and relevant data.

In the verbal information variable, there were three content categories: description, CTAs, and question. This study recorded the verbal information on the visual elements (i.e., photo, short

video, IGTV, carousel) and captions. Description represents a plain statement. This simply explains the content brands posted. For CTAs, in Moran et al. (2019) study, they involved those cues that asked users to like, click, comment, and share. This research followed the approach. The CTAs could be in the variations of: "Like this post," "Click the link in the profile," "Write your comment," or "Share/tag this information to your friends." Additionally, in this research, CTAs also referred to those posts containing encouragement irrelevant to engagement. For example, a post describing a competition might display the wording of "Save the date." In the question category, this study recorded all those posts with question marks on them. A post might query followers' opinions or simply ask: "How are you?". In this verbal information variable, the categories were mutually inclusive. This means that content could contain all the verbal information types of description, CTAs, and questions within one post. For the content characteristics variable, Table 3 exhibits the summary of the content characteristics description and examples.

After developing dictionaries, the process continued to code the data using a binary system, as implemented by previous literature (Shahbaznezhad et al., 2021; Tafesse, 2015). This research coded 1 when a type of social media post was present and 0 when absent. This coding was in spreadsheets. There was a training session involving the first author, second author, and one research assistant in the first step. The process allowed the three individuals to agree and disagree on the coding of images. After this, to ensure reliability, the first author and research assistant independently collected 100 sample images. Subsequently, the second author conducted the intercoder-reliability calculation for the sub-set of 100 images collected by the first author and research assistant. From the 19 categories of variables, the median of Cohen's kappa value was 0,92. This was within the range of "almost perfect" (Landis & Koch, 1977). Following this, the research assistant collected the remaining images.

Data analysis

Dependent variables in this research were the number of likes and comments. These were count data with positive-only integers and thus followed Poisson distribution (Hilbe, 2014). However, a proportion of likes and comments in this study received much higher engagement than others. This might be due to the pertinent posts achieved virality. Consequently, the variance of likes and comments was much higher than their means (Likes: $M = 767.973$, $S^2 = 1313322.2$; Comments: $M = 14.265$, $S^2 = 2303.837$). Such conditions showed that the data were overdispersed and thus violated the Poisson assumption of equidispersion

Table 3. Descriptions of content characteristics variables.

Variable*	Description	Example**
Content Types - Rational		
Product	Information of classes and study programs disseminated by universities.	Becoming a psychologist with us in the Magister of Professional Psychology at University ABC.
Coverage	Reports and content discussing national and global events that are irrelevant to products.	Methods to prevent Covid-19 contagion for employees
Holiday	Content commemorating events, people, or situations.	Happy Eid Mubarak 1441 H.
Information	Posts delivering generic university information and tips and trick for students.	Study from home is extended based on Rector's Directive No. XXX.
Achievement	Achievement reports of universities, lecturers, students.	University ABC is the best private university in Region X.
Cooperation	Content reporting partnerships between universities and other institutions.	Faculty of Applied Science University ABC partner with Company DEF for Certified Internship Program
Content Types - Interactional		
Entertainment	Posts intending to entertain followers in the forms of poetry, songs, musical performances, comedy, games, and others.	Let's play some crossword games.
Charity	Invitation and reports of charity events.	Donation distribution: University ABC helps communities affected by Covid-19.
Content Types - Transactional		
Competition	Posts inviting students to join competitions. The competitions offer rewards.	Code League 2020: Compete with all coders from many regions.
Promotion	This type contains posts with monetary benefits such as discounts, scholarships, and subsidies.	Announcement: Online learning subsidies and tuition fee discounts based on Rector's Directive No. XXX.

*The topics are mutually inclusive (e.g., one post can contain information and entertainment); **Translated from Indonesian to English.

(Cameron & Trivedi, 2013). As a solution for such overdispersion, this research adopted the negative binomial model (Coxe et al., 2009). Preceding studies investigating SME with a similar situation (Cvijikj & Michahelles, 2013; Moran et al., 2019) have incorporated the negative binomial model because it is less restrictive than a Poisson model. The negative binomial model to explain likes and comments in this research is as follows:

$$y_{ij} = \alpha \exp\left(\sum_{t=1}^{486}\beta 0 + \beta\ nonverb_{cj}X1j + \beta\ verbal_{dj}X2j + \beta\ content_{ej}X3j + \beta\ time_{fj}X4j + \beta\ hash_{gj}X5j\right) \quad (1)$$

where:

y_{ij} = y_{1j} is the number of likes per brand post j, y_{2j} is the number of comments per brand post j;

β nonverbcj = the regression coefficient indicating nonverbal information level c at brand post j (baseline = photo);

ß verbaldj = the regression coefficient indicating verbal information cues d at brand post j (baseline = description);

ß contentej = the regression coefficient indicating content characteristics e at brand post j (baseline = product);

ß timefj = the regression coefficient indicating timing f at brand post j (baseline = weekend);

ß hashgj = the regression coefficient indicating hashtag g at brand post j (baseline = absence).

This research modeled the dependent variables separately (i.e., likes and comments). Also, although there were content characteristics divisions (i.e., rational, emotional, transactional), the baseline for all the types was the product category. This study deployed negative binomial regression with maximum likelihood estimation (MLE) to test the effects of nonverbal information, verbal information, and content characteristics on SME (i.e., likes and comments).

Results

Table 4 presents the empirical results of the proposed model for SME, whereas Table 5 displays the summary of the results per the developed hypotheses. The model explaining likes is significant as a whole (LR χ^2 (16, N = 486) = 133.946, $p < 0.01$). Similarly, the model for comments is also significant as a whole (LR χ^2 (16, N = 486) = 111.662, $p < 0.01$). The negative binomial models further revealed that each of the variables has different effects on each SME of likes and comments.

The nonverbal information variable shows varying and similar effects for likes and comments respectively. Posts in short video and IGTV formats have no significant effects on likes (Short Video = −.012, $p > 0.05$, IGTV = −.139, $p > 0.05$). On the other hand, carousel format posts have significant and positive effects on likes (Carousel = .338, $p < 0.01$). For comments, posts in all formats have no significant effects on the model (Short Video = −.132, $p > 0.05$, IGTV = .132, $p > 0.05$, Carousel = .229, $p > 0.05$). Accordingly, these analysis results of nonverbal information reject H1a, H1b, H1c, H2a, H2b, and H2c. In terms of verbal information, posts containing CTAs have no significant effects both for likes (CTAs = .005, p > 0.05) and comments (CTAs = .216, p > 0.05). This clarifies that brand posts containing verbal information of CTAs cannot lower or increase SME, hence this study rejects H3a and H4a. Conversely, posts embedded with verbal information of questions have significant and positive effects for both likes (Question = .275, p < 0.05) and comments (Question = .497, p < 0.05). Thus, these findings reject H3b and H4b.

In addition, the content characteristics variables exhibit interesting results. In the context of rational content, posts involving coverage and holiday have significant and negative effects for likes (Coverage = −0.202, p < 0.05, Holiday = −0.275, p < 0.01) and comments (Coverage = −0.560, p < 0.01, Holiday = −1.022, p < 0.01). Based on these, this study accepts H5a, H5b, H6a, and H6b. Content with information shows significant and positive effects for both likes (Information = 0.173, p < 0.05) and comments (Information = 1.024, p < 0.01). Posts informing achievement have significant and positive effects on likes (Achievement = 0.617, p < 0.01) and no significant effects on comments (Achievement =

Table 4. Negative binomial regression results.

	Likes		Comments	
Parameter	B	Std. Error	B	Std. Error
(Intercept)	6.730**	.144	2.548**	.346
Photo (Base)	–	–	–	–
Short Video	-.012	.109	-.132	.264
IGTV	-.139	.118	.132	.286
Carousel	.338**	.1	.229	.234
Description (Base)	–	–	–	–
CTAs	.005	.099	.216	.222
Question	.275*	.107	.497*	.251
Product (Base)	–	–	–	–
Rational Content				
Coverage	-.202*	.082	-.560**	.202
Holiday	-.275**	.094	−1.022**	.235
Information	.173*	.081	1.024**	.201
Achievement	.617**	.16	.038	.379
Cooperation	-.219	.158	-.171	.407
Interactional Content				
Entertainment	.023	.183	.123	.463
Charity	-.373	.206	-.919	.491
Transactional Content				
Competition	-.474**	.105	-.505	.271
Promotion	-.323**	.096	-.125	.229
Weekend (Base)	–	–	–	–
Weekday	-.149	.086	-.244	.207
Hashtag Absent (Base)	–	–	–	–
Hashtag Present	.061	.097	-.203	.244
(Scale)	1[a]		1[a]	
(Negative binomial)	.624	.037	3.216	.225
LR χ^2 (16, N = 486)	133.946**		111.662**	
Deviance/df	1.142		1.107	

Notes: The results reported in the table are unstandardized coefficients;
**for p-value < 0.01,
*for p-value < 0.05.

0.038, p > 0.05). Content displaying cooperation has no significant effects on likes (Cooperation = −0.219, p > 0.05) and comments (Cooperation = −0.171, p > 0.05). As such, these results reject H5c, H5d, H5e, H6c, H6d, and H6e. Also, these discoveries evinced that each topic in the rational content has its own effects on likes and comments.

For the interactional content, both entertainment and charity posts have no significant effects on likes (Entertainment = 0.023, p > 0.05, Charity = −0.373, p > 0.05) and comments (Entertainment = 0.123, p > 0.05, Charity = −0.919, p > 0.05). This means that the discoveries reject H7a, H7b, H8a, and H8b. In the case of transactional content, posts comprising competition and promotion have significant and negative effects on likes (Competition = −0.474, p < 0.01, Promotion = −0.323, p < 0.01) and no significant effects on comments (Competition = −0.505, p > 0.05, Promotion = −0.125, p > 0.05). Thus, the findings reject *H9a, H9b, H10a,* and *H10b*.

Discussion and implications

This study revealed that video posts (i.e., short videos and IGTVs) trigger neither likes nor comments in the nonverbal information variable. In terms of likes, the results of video posts are in line with Tafesse's (2015) research in the automotive industry. In commenting behavior on videos, the finding concurs with Sabate et al. (2014) and Cvijikj and Michahelles (2013) from the travel agency and FMCG firms, respectively. On the other hand, in the case of the carousel format, although carousel posts have insignificant effects on comments, they have significant contributions in enhancing likes. This study discussed the higher education industry offering utilitarian products and services. The customers may search for complete information to improve their understanding of the offerings. Carousel posts can fulfill this requirement. Thus, consumers exposed to carousel content perform active SME (i.e., likes). For consumers outside the higher education sector, they may respond

Table 5. A summary of results.

Independent variable	Model 1 - Like		Model 2 - Comment	
	Hypothesis	Outcome	Hypothesis	Outcome
Nonverbal information	H1a: Short video content generates fewer likes than the one in a photo format	Rejected	H2a: Short video content generates fewer comments than the one in a photo format	Rejected
	H1b: IGTV content generates fewer likes than the one in a photo format	Rejected	H2b: IGTV content generates fewer comments than the one in a photo format	Rejected
	H1a: Carousel content generates fewer likes than the one in a photo format	Rejected	H2a: Carousel content generates fewer comments than the one in a photo format	Rejected
Verbal Information	H3a: Content containing CTAs generates lower likes compared to the posts only containing descriptions	Rejected	H4a: Content containing CTAs generates lower comments compared to the posts only containing descriptions	Rejected
	H3b: Content containing questions generates lower likes compared to the posts only containing descriptions	Rejected	H4b: Content containing questions generates lower comments compared to the posts only containing descriptions	Rejected
Rational Content	H5a: The topic of coverage has a negative effect on likes	Accepted	H6a: The topic of coverage has a negative effect on comments	Accepted
	H5b: The topic of holiday has a negative effect on likes	Accepted	H6b: The topic of holiday has a negative effect on comments	Accepted
	H5c: The topic of information has a negative effect on likes	Rejected	H6c: The topic of information has a negative effect on comments	Rejected
	H5d: The topic of achievement has a negative effect on likes	Rejected	H6d: The topic of achievement has a negative effect on comments	Rejected
	H5e: The topic of cooperation has a negative effect on likes	Rejected	H6e: The topic of cooperation has a negative effect on comments	Rejected
Interactional Content	H7a: The topic of entertainment has a positive effect on likes	Rejected	H8a: The topic of entertainment has a positive effect on comments	Rejected
	H7b: The topic of charity has a positive effect on likes	Rejected	H8b: The topic of charity has a positive effect on comments	Rejected
Transactional Content	H9a: The topic of competition has a positive effect on likes	Rejected	H10a: The topic of competition has a positive effect on comments	Rejected
	H9b: The topic of promotion has a positive effect on likes	Rejected	H10b: The topic of promotion has a positive effect on comments	Rejected

distinctly to carousel posts considering their different needs and wants. Due to this actuality, future research may examine the effects of carousel formats on SME in other industries.

Pertaining to verbal information, questions embedded in verbal information can significantly increase likes and comments. This discovery of verbal information (i.e., questions) positively influencing comments is logical. A question, directly or indirectly, prompts social media users to comment. Moran et al. (2019), Schultz (2017), and De Vries et al. (2012) affirmed this causation stating that verbal information conveyed in the format of a question can significantly enhance comments. In the case of questions affecting likes, the research of Shahbaznezhad et al. (2021) uncovered that the numbers of comments and the sentiment of the relevant comments significantly induce numbers of likes. Positive comments enhance the likability of a social media post and thus attract more likes. In simple words, there is an indication that posts delivering questions attract comments. This increased in comments eventually stimulates likes.

Relating to content characteristics, informational content can promote both likes and comments. This contradicts Coelho et al. (2016), stating that informational content is an insignificant factor for SME. Also, this research proves that posts disseminating achievement can obtain more likes. In general, among the ten topics, only these two (i.e., information and achievement) can positively influence SME in this study. This opposes results from previous investigations, confirming that entertaining posts also positively affect SME (Cvijikj & Michahelles, 2013; Dolan et al., 2019; Tafesse, 2015). Such condition demonstrates that, apart from entertainment and other content characteristics, customers particularly enjoy informative posts shared by brands. This is because one of the primary motivations users engage on social media is for information seeking (Hossain et al., 2019). Concerning achievement, posts involving such content exhibit brand quality. As such, customers may feel proud to be associated with respected brands and hence engage with the brands' social media accounts.

Still discussing rational content, coverage and holiday posts deteriorate SME. This challenges

the findings of Schultz (2017), verifying that coverage and holiday posts are insignificant factors for likes and comments. Platforms may play a role in the differences. Schultzs' (2017) research was on Facebook, while this study was on Instagram. Also, pertinent to coverage, this research collected the data in May 2020. Within this month, the analyzed samples primarily reported the Covid-19 pandemic. News and other digital channels all delivered Covid-19-related articles and information. Customers exposed to the content may feel overwhelmed. As a result, consumers were reluctant to engage with posts involving pandemic events. Future research should control special events in the coverage variable. This method can produce more reliable insights. For holiday content, this study recorded the commemoration of national and international events (e.g., National Awakening Day, Labor Day, National Education Day, Eid al-Fitr, and Ascension Day of Jesus). Several of these may be irrelevant for customers. Thus, they showed no interest in engaging with the holiday posts and, as an effect, SME dropped.

Moving to interactional or emotional content, either positively or negatively, entertainment and charity posts play no role in inducing SME. The results disapprove the work of (Cvijikj and Michahelles (2013) for entertaining posts and of Schultz (2017) for charity content. These previous studies discussed SME on Facebook, whereas this research focused on Instagram. Shahbaznezhad et al. (2021) substantiated that Instagram has no moderating role in stimulating SME through interactional content. It appears Instagram users are indifferent toward interactional posts.

In the context of transactional content, posts comprising competition and promotion reduce the number of likes. This is against the study of Shahbaznezhad et al. (2021), validating that content offering transactional content can magnify likes. When scrutinizing this transactional content, it should take into account the investigated industry. Shahbaznezhad et al. (2021) examined the air travel sector. Consumers consider price when purchasing airline tickets (Escobar-Rodríguez & Carvajal-Trujillo, 2013; Jeng & Lo, 2019). Considering this, a sizeable number of airline providers offer promotions online (Law & Leung, 2000). Due to these facts, it may be reasonable for air travel consumers to engage with social media posts displaying competition and promotion. On the other hand, this study analyzed the higher education industry. When posts resonate only with a part of customers on social media, the other bigger groups of audience engage less (Schultz, 2017). Competition and promotion only appeal to a small group of students. It is rational when universities post transactional content (i.e., competition and promotion), SME (i.e., likes) plummets.

Specifically to the higher education sector, all the results from this research contradict that of Peruta and Shields (2018). This research corroborated that informative posts can increase SME, whereas Peruta and Shields (2018) proved a decrease in engagement. Similarly, while this study revealed that promotional content lowers engagement, Peruta and Shields (2018), on the other hand, confirmed that posts involving promotion can enhance SME. Another contradiction further occurs for interactional content. This study evidenced that the content has no significant effects on SME, whereas Peruta and Shields (2018) illustrated that interactional posts enable brands to receive higher SME. These inconsistent findings occur maybe because social media is highly contextual. Voorveld et al. (2018) stated that each social media platform has its own audience, culture, and infrastructure. This research concentrated on Instagram, while Peruta and Shields (2018) discussed Facebook. Additionally, research has stated that users' behavior on social media differs by country and culture (Lin et al., 2017; Lu, 2018; Vasalou et al., 2010) and between developed and emerging markets (Ilavarasan et al., 2018; Kim et al., 2019). This investigation transpired in Indonesia, an emerging market. Conversely, Peruta and Shields (2018) examined higher education SMM practice in the US, a developed country. Another factor that may contribute to differences in results is the sampled universities. In Peruta and Shields,' (2018) study, the data included both public and private universities. Scholars argue that people favor public universities more than their private counterparts due to public universities' capabilities in providing better education and lower fees (Akareem & Hossain, 2012; Anabila et al., 2020).

Theoretical implications

This research is the first to extend Johnson et al. (2006) conceptualization of interactivity employing IT in the context of social media. With this endeavor, this research specifically examined the facets of nonverbal information and responsiveness (i.e., verbal information and content characteristics). Regarding nonverbal information, this research is the first SME scholarship investigating the carousel format. The type of format is the highest richness of nonverbal information on Instagram because it can involve multiple photos and videos in one post. This research advanced SMM literature by proving that consumers on Instagram in an emerging market will perform SME (i.e., liking) if a post is in the highest degree of richness (i.e., the carousel format). Additionally, unlike Coelho et al. (2016) and Shahbaznezhad et al. (2021), this study on Instagram discussed the effects of verbal information on SME. Therefore, this research augmented SME literature by showing that the most appropriate and relevant responsiveness in the verbal information in the contexts of this study is questions. Incorporating questions in a post can improve both likes and comments. Furthermore, this research improved the theoretical and empirical framework of SME by proving that within one single category, content characteristics can have contrasting effects on SME. This is apparent in the analysis results of the rational content type. For example, while coverage and holiday posts significantly reduce likes, content with information and achievement significantly improve likes. Social media may post various content characteristics such as comedy, games, promotion, and employees. Thus, this study suggests future research investigating content characteristics to approach the analysis using topics instead of general categories. This method will yield specific results and may offer a more holistic comprehension of SME.

Practical implications

The discussion has compared this study with that of Peruta and Shields (2018). Although in a similar sector (i.e., education), the results are contrasting because the studies are within different platforms (Instagram versus Facebook), countries (Indonesia versus the US), and types of universities (private versus mixed). Concerning the industry, this study assessed higher education, and Moran et al. (2019) examined entertainment; and the findings are contradictory. Therefore, there is a warning for generalization. The results from this study may only apply to those private universities operating in Indonesia using Instagram as a platform for SMM and DCM. Other businesses (e.g., retailers), social media platforms (e.g., Twitter and TikTok), and countries (e.g., Brazil) may require their own SME analyses.

Table 6 exhibits the summary of this study's recommendation pertaining to DCM strategies on social media. The findings are insights for brands to formulate effective DCM and SMM to enhance SME. The guidelines (G) are as follows: (G1) to improve likes, universities can publish content in carousel formats or sharing their achievement; (G2) to increase both likes and comments, universities can embed questions in posts or sharing informational content; (G3) universities should limit posting transactional content (i.e., competition and promotion) as it can reduce likes; and (G4) universities should avoid publishing rational posts (i.e., coverage and holiday) as they can decrease both likes and comments.

Limitations and future research

Despite the efforts and insights, this study still carries several limitations that may inspire future research. To begin with, the dataset in this study is secondary. Due to this reason, this study is

Table 6. A summary of recommended social media content marketing strategies for brands.

Social Media Objectives	Implement	Limit/Avoid
Likes	Posting in a carousel format	Posting content containing coverage of events
	Embedding questions in a post	Posting holiday content
	Posting informational content	Posting content involving competition
	Posting achievement	Posting promotional content
Comments	Embedding questions in a post	Posting content containing coverage of events
	Posting informational content	Posting holiday content

unable to factor consumers' intentional or unintentional behaviors in performing SME (i.e., liking and commenting). Future research may examine other engagement dimensions (e.g., intentional engagement) using experimental research such as in Solem and Pedersen (2016) to substantially reduce such potential bias. The secondary nature of the dataset also hinders this research from investigating the actual consequences of SME on business performance. In the context of higher education, future studies may collaborate with universities and treat SME as an intervention or a path to students' enrollment or brand equity. The dataset further limits this study to control the demographics in the likes and comments. Research found that females showed more favorable attitudes than males pertaining to SMM communications, particularly for young consumers (Duffett, 2017). University students are young. Hence, this gender and other demographic factors (observed and unobserved heterogeneity) may impact the results of this study. For instance, this study claims that content containing coverage of events drops SME. This research collected the data in May 2020. Within this month, the samples being analyzed primarily reported the Covid-19 pandemic. Research states that women display higher anxiety, stress, and depression during the Covid-19 crisis (García-Fernández et al., 2021). This indicates that if women dominate those likes and comments in this study, then women's psychological conditions may contribute to the results. Scholars may implement survey research to minimize biases in demography. Lastly, this research focuses on Instagram. Voorveld et al. (2018) signified that each social media platform has its own audience, culture, and infrastructure. Accordingly, this research alerts for generalizability in other social media channels. Future research may investigate factors driving SME in other platforms, such as TikTok. It is a video-sharing app with more than 800 million monthly active users (Sehl, 2020). Discussing SME in the platform would allow brands to capitalize on the insights. Also, because extant literature never examines TikTok, the discussion involving the platform may expand SME scholarship.

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Declaration of interest statement

I confirm that there are no relevant financial or non-financial competing interests to report.

Data availability statement

The data that support the findings of this study are available from the corresponding author, RMW, upon reasonable request.

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