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Effect of Emotion on Content Engagement in Social Media Communication: A Short Review of Current Methods and a Call for Neurophysiological Methods

Melanie Schreiner and René Riedl

Abstract Engagement with content is vital for companies to achieve overall marketing goals (e.g., sales). Emotional content has the potential to grab attention and evoke the desired engagement. Our goal is to review the research methods used in the extant literature on the emotional effect on content engagement in social media communication. The findings show an unbalanced use of methods. Content analysis and emotion coding procedures are the dominant methods, while other methods have hardly been used. Based on this finding, we argue that future research needs to deploy neurophysiological methods to capture the complex emotion construct. Because neurophysiological methods are often applied in experimental settings, an increasing use of these methods would also imply a more advanced discovery of causal effects, thereby better clarifying the role of emotion in the content engagement process.

Keywords Content engagement effect · Emotion · Social media communication

1 Introduction

The global dissemination of social media platforms makes them indispensable channels in marketing communication. Companies can contact social media users and communicate with them. However, intense usage produces a vast amount of data from users and companies. Companies need to create content in order to gain users' attention and evoke engagement on a regularly basis [1]. Emotional content could

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grab attention in order to evoke engagement, but companies struggle in the challenging process of content creation [2, 3].

Due to the nature of social media, engagement indicates the efficiency in marketing communication. Engagement appears in an interaction experience and can be expressed in three dimensions: behavior, cognition, and emotion. The emotional component of the definition indicates an emotional effect to the social media content, thereby affecting users' engagement with the content (e.g., a like for a posting). Emotion is well known for its influence on communication processes in marketing and information systems research [e.g., 4, 5]. Importantly, studies demonstrate an effect of emotion on content engagement in social media communication [6]. Although social media have significant relevance in the daily routine of millions of users, it has been researched with low intensity [e.g., 3].

Our goal is to review and assess prior research from a methodological perspective about the effect of emotion on content engagement in social media. Specifically, we address the following research question: *Which methods have been used and which methods could be used to study the emotional impact on content engagement in social media marketing communication?* The following section contains a theoretical background of the relations between engagement, emotion, and content. The next sections delineate the literature analysis method and findings. A discussion, conclusions and future research are described in the last section.

2 Engagement in Social Media Marketing

Engagement has frequently been stated as a common goal in social media marketing communication [7]. Customer engagement is defined as "[…] a *psychological state* that occurs by virtue of *interactive, cocreative customer experiences* with a *focal agent/object* (e.g., a brand) in focal service relationships. It occurs under a specific set of context-dependent conditions generating differing CE levels; and exists as a *dynamic, iterative process* within service relationships that *cocreate value*. […] It is a *multidimensional concept* subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional and/or behavioral dimensions." [8, p. 260, italics in original]. Engagement with content comprises the user's interaction experience with a company's content on social media platforms, where the response can be expressed on cognitive, emotional, and/or behavioral levels. This expression (e.g., share of a post) is dependent on the context and can occur within a dynamic, iterative process (e.g., brand excitement). Previous studies provide evidence of content engagement's positive effect on sales performance [9] and branding goals [10]. Therefore, content engagement affects the success of social media marketing.

The stated customer engagement definition already reveals the effect of emotion on content engagement. The term *emotion* involves various definitions and interpretations. Schmidt-Atzert et al. [11] define emotion as „[…] a qualitative, descriptive state, which occurs with changes on one or more levels: feeling, physical state and expression" [11, p. 25, translated by the authors]. Scherer (2005) extends the term

as "episode of interrelated, synchronized changes in the states of all or most of the five organismic subsystems in response to the evaluation of an external or internal stimulus event as relevant to major concerns of the organism" [12, p. 697]; thus, triggers of emotion can be internal or external stimuli such as marketer-generated content. Importantly, this definition highlights the importance of neurophysiology, because changes in an organism as a response to stimuli are inherently biological. It follows that studying the influence of emotion on content engagement implies a multimethod approach. Specifically, a research approach that does not consider neurophysiology is incomplete. From a measurement perspective, the emotion construct can be captured via the dimensions valence and arousal [e.g., 13], or categorically (e.g., happiness or anger) [e.g., 14].

Emotions have been proven to have essential effects in marketing communication [e.g., 5]. Previous studies have already shown that emotions may influence the advertising effectiveness (e.g., attitude) of content [5]. Marketers need to create branded content with affective messages in order to elicit emotions [15] and subsequently to provoke engagement in social media. Therefore, emotions (indirectly via content engagement) will have an effect on the success in social media marketing [6, 16].

3 Literature Review Method

To answer the research question, we conducted a structured literature review [17]. First, we carried out a literature search with keywords and used various sources, such as leading journals and conference proceedings. Additionally, we conducted forward and backward research. Based on the results of a first search on Google Scholar, we generated a keyword list.[1] The keywords were paired to produce search terms for a systematic search. We conducted a literature research and applied our keyword list within information systems research[2] based on the basket of 8[3] and marketing

[1] Keyword list: social media engagement, popularity brand post, popularity brand content, interaction brand post, interaction brand content, engagement brand post, engagement brand post, social media content, Facebook like, customer brand engagement + social media, content engagement, online engagement, user engagement, content strategy, viral online content, social media content emotion, emotional content, emotional text, emotional communication, emotional video, emotional picture, emotional image content, affective content, emotional virality, emotional engagement, emotional participation, emotional interaction, emotional popularity, emotional reaction, emotional endorsement, emotional rebroadcasting, affective engagement, affective virality.

[2] Information systems journals*: INFORM SYST RES, MIS QUART, J MANAGE INFORM SYST, J ASSOC INF SYST, J INF TECHNOL, INFORM SYST J, J STRATEGIC INF SYST, EUR J INFORM SYST.

[3] http://aisnet.org/?SeniorScholarBasket.

publications[4] based on the German Academic Association for Business Research.[5] We removed publications where we had no match of topic and content or due to a non-empirical research approach. Finally, we were left with 50 papers[6] focusing on content engagement in social media. We investigated the constructs of the research models and the applied research method characteristics.

4 Results

Our results show that the interest in the topic started in 2011 (see Fig. 1). Most of the studies (33) apply a mixed methods approach (qualitative and quantitative methods). Further nine publications use a pure qualitative and eight publications a pure quantitative research approach. A total of 42 studies investigated the engagement construct in the context of Facebook, whereas a limited number considered Twitter (3), YouTube (3), Instagram (2), or other platforms (5; Kaixin, MySpace, Weibo, Groupon, Renren).

Next, we analyzed the research models. Overall, 32 publications focus on the content-engagement (C-EG) relation. This type of research model is investigated intensely and dominates the research domain. Further 15 publications focus on the content-emotion-engagement (C-EM-EG) research model. Another three publications investigate the content-emotion (C-EM) relation, and no publication focuses on the emotion-engagement (EM-EG) relation. These findings reveal a lack of investigations in the emotional effect on content engagement. Specifically, publications which conceptualize emotion as mediator between content and engagement are rare (i.e., low number of C-EM-EG).

So far, most researchers performed content analyses (40), which frequently were implemented in a case study design; we identified this method combination 20 times. Additionally, the case study method is used 22 times overall. The survey method is mainly applied within field experiments; both research methods are used with mod-

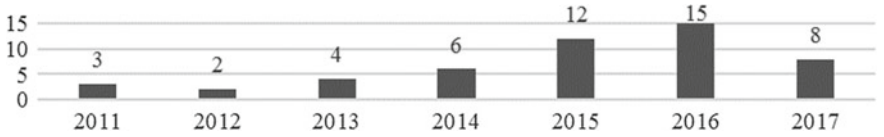

Fig. 1 Publications by year (absolute numbers)

[4]Marketing journals*: J MARKETING RES, J MARKETING, J CONSUM RES, MARKET SCI, INT J RES MARK, J ACAD MARKET SCI, J RETAILING, J SERV RES – US, J INTERACT MARK

* Abbreviations are based on Web of Science (https://images.webofknowledge.com/WOK46P9/help/WOS/A_abrvjt.html).

[5]http://vhbonline.org/vhb4you/jourqual/vhb−jourqual−3/teilrating−mark.

[6]The complete list of papers is available upon request.

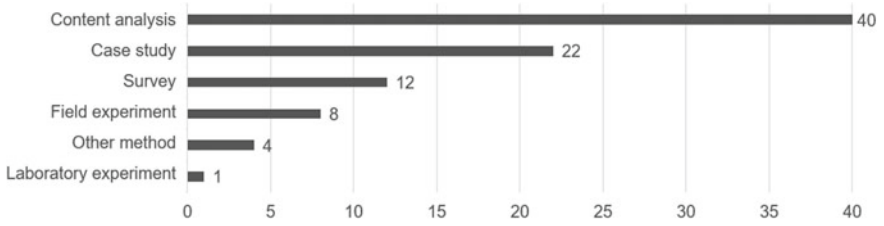

Fig. 2 Research methods used in previous studies (absolute numbers)

erate frequency. Previous studies were hardly conducted in the form of laboratory experiments (we identified only one study). Other research methods such as development of algorithms (e.g., for prediction models) are identified in four papers. As preliminary studies have almost totally neglected experimental research, our findings do not show a high degree of methodological plurality (see Fig. 2.).

A limited number of literature (15 papers) have investigated in the impact of emotion on content engagement. Considering the operationalization of the emotion construct, mainly three categories can be identified: (i) emotion dimensions, (ii) emotion categories, and (iii) general emotional message appeal. Result on (i): Eight studies operationalize the emotion construct dimensional whereby eight studies measure valence, one study measures arousal and no one considers dominance for emotion measurement. Result on (ii): Seven publications apply categories to capture emotion. The number of categories varies from 7 to 32, some of them did not mention the number. Result on (iii): Four studies exert a message appeal approach where they rate if emotions occur or not [e.g., 18]. Overall, our results indicate that most of the studies operationalize the emotion construct by using highly simplified measurement approaches, such as a pure valence-based approach without measurement of arousal.

5 Discussion, Conclusion and Future Research

The first publications, which targeted the topic of this paper, have been published in 2011. Our findings show that the emotion construct is hardly considered in the content engagement process in marketing and information systems research. Methodologically, we found that the emotion construct is predominantly measured by coding procedures based on valence only. Although the literature provides different perspectives and definitions of the emotion construct, all agree on the complexity of emotions [e.g., 19, 20]. Therefore they recommend to capture emotional responses based on multiple methods [21]. The Use of neurophysiological measures could overcome the observed shortcoming and provide more holistical insights on emotional impact [22]. In essence, physiological methods and tools support a deeper understanding of why and how emotions influence content engagement in social media, as outlined for IS research in a book by Riedl and Léger [23]. We propose to extend

the self-report measurement framework by neurophysiological methods and apply, for example, startle reflex and skin conductance to measure emotional valence and arousal in social media communication (see Table 1).

The variety in research methods is currently low and unbalanced. For example, experiments, in particular those using neurophysiological measures, are hardly conducted. Because laboratory experiments are critical to establish causal relationships (here the nomological network is content → emotion → content engagement), future research should overcome the current methodological deficits in order to make possible a better understanding of the role of emotions in social media marketing. Neurophysiological methods will—most likely—reveal novel insights into this nomological network. Moreover, it is critical to mention that startle reflex and skin conductance are not the only neurophysiological methods which can be used in the present study context. In addition to these methods that relate to autonomic nervous system measurement, also methods related to central nervous system measurement could be applied, such as functional magnetic resonance imaging (fMRI) [e.g., 29] and electroencephalography (EEG) [e.g., 30]. Further methods are described in the NeuroIS literature [e.g., 23, 31, 32] and in other disciplines such as psychophysiology [e.g., 27].

A limitation of our work concerns the process of the literature review which involved not all possibly relevant keywords, and the keywords were not applied in all possibly relevant research fields. Further research, therefore, should extend the keyword list and consider research in other disciplines, such as psychology. Finally, it is also critical to mention that emotion in content engagement processes is related to other concepts. For example, one major concept in psychology is flow. The flow construct is considered as a cognitive state in an interaction process (e.g., during navigating a website) [33–35]. It follows that future research should consider the existing insights on flow (and the knowledge on its neurophysiological foundations) [e.g., 36], as well as the knowledge on related constructs, in order to advance research on the effects of emotion on content engagement in social media communication.

Table 1 Proposed emotion measurement in social media communication

Emotion	Measurement method		Reference (example)
Category	Self-report	Semantic differential	[13]
Valence, arousal, and dominance	Self-report	Self-Assessment Manikin (SAM)	[24]
Valence	Neurophysiological method	Startle reflex	[25–27]
Arousal	Neurophysiological method	Skin conductance	[26–28]

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