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## **An Empirical Study of the Impacts of Digital Marketing Contents on User Engagement in Social E-commerce Platform**

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**Full Research Paper****An Empirical Study of the Impacts of Digital Marketing Contents on User****Engagement in Social E-commerce Platform***Ronglin Hou<sup>1</sup>, Fei Wang<sup>1\*</sup>, Zhen Zhu<sup>1</sup>, Bingchen Guo<sup>1</sup>, Jing Zhao<sup>1</sup>*<sup>1</sup> School of Economics and Management, China University of Geosciences, Wuhan 430074, China

**Abstract:** This study empirically investigates the impacts of digital marketing contents on user engagement behaviors. Using digital storytelling as theoretical foundation, this paper identifies three categories of choices for designing digital contents, i.e., fundamental elements, structural elements, and presentation elements. Then, the study explores how these design choices enhance three different user engagement, including likes, comments, and subsequent purchases. With 12,548 posts in JD WeChat shopping circle as the empirical dataset, this study tests the hypothesized by combining machine learning method with regression analysis. The empirical results show the design choices discriminatively impact three kinds of user engagement behaviors. The theoretical and practical implications are discussed.

Keywords: digital marketing contents, digital storytelling, user engagement, social e-commerce platform

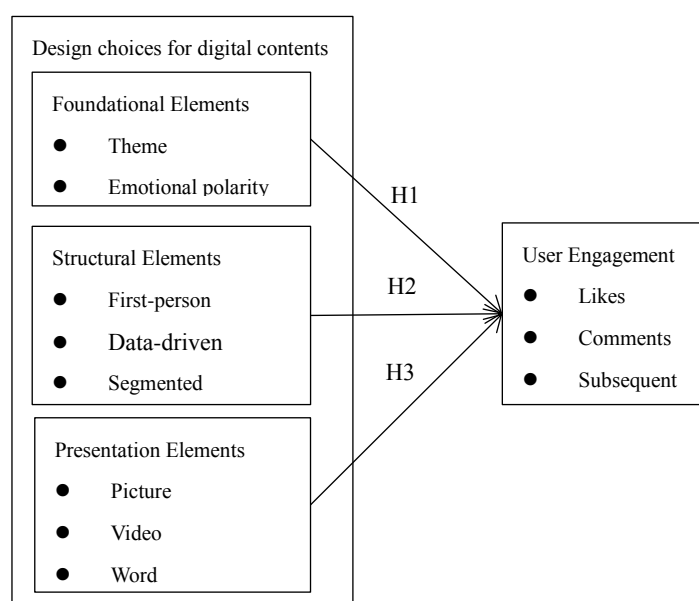
**1. RESEARCH QUESTION**

In order to attract customers and promote product sales, more and more firms are using social media platforms to design and release digital marketing contents such as essays, graphics, short videos, and live broadcasts. These digital contents provide customers with an immersive shopping experience, and thus enhance user stickiness and stimulate shopping needs<sup>[1]</sup>. But how to design effective digital contents to achieve marketing goals becomes a new challenge for firms using social medial platforms.

Against above background, the objective of this study is to examine the impacts of digital contents on user engagement on social business platform. Accordingly, the research questions of this paper include: (1) what are the design choices of digital marketing contents on social e-commerce platform? (2) how these different design choices impact different user engagement behaviors?

**2. THEORETICAL BACKGROUND**

Although existing research explored the economic impacts of user-generated content (UGC) and firm-generated content (FGC)<sup>[2]</sup>, there are two limitations in explaining how to design digital marketing contents. First, current UGC and FGC research mostly focus on a series of contents, rather than a piece of digital content. For example, prior studies explore the overall quantity, valence, and richness of UGC and FGC. Such coarse-grained analysis cannot help digital content generators to design effective contents. Second, previous UGC and FGC research have not differentiated different user engagement behaviors, and lacked empirical research on the impacts of single text content on users actual

**Figure 1. Research model**

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purchase behavior.

In order to fill up above knowledge gap, we employed digital storytelling as our theoretical foundation. Pavlik (2017) identified the three important components of digital storytelling in the digital media environment: (1) foundational elements (theme characteristics and emotional characteristics), (2) structural elements (whether first-person, whether segmented narrative, and whether to quote numbers), and (3) presentation forms (video, picture and word)<sup>[3]</sup>. As shown in Figure 1, our research model presents how three categories of design choices impact three user engagement behaviors.

### 3. DATA COLLECTION AND ANALYSIS

We choose JD WeChat shopping circle as the research context of our empirical study because it provides data on digital content, product purchase links, user engagement behaviors such as comments, likes, and actual purchases of products after reading the content. We selected the makeup honey circle to collect data because it is one of most active shopping circles. The data includes 12548 posts from September 2016 to November 2019. We use ordinary least squares (OLS) regression analysis with robust standard error to test hypotheses. Table 1 gives the results. Model 1 only involved control variables, and Model 2 further included all independent variables.

### 4. CONCLUSIONS

Our empirical study found that the foundational elements, structural elements and presentation forms of digital contents can discriminatively promote users engagement behaviors. Theme features of foundational elements have the most significant impact. The foundational elements and presentation forms of content characteristics can affect the three engagement behaviors of consumers like, comment and purchase, while structural elements only affect consumers' like behavior. Our study has both theoretical and practical implications.

**Table 1. Regression analysis results**

Variable	Model 1			Model 2		
	Likes	Comments	Purchases	Likes	Comments	Purchases
Dependent Variable						
Fansum	.362*** (1.29)	.323** (0.98)	.291*** (1.11)	.289*** (2.26)	.232** (1.13)	.192*** (-1.29)
Control Variable						
Level	.029** (2.13)	.273 (2.09)	.132* (1.94)	.014** (5.08)	.221 (2.81)	.102* (0.10)
Price	-.561 (0.85)	-.653 (1.86)	-.372 (2.05)	-.278 (4.20)	-.786 (3.16)	-.232 (1.44)
Length				.038* (1.32)	.009 (2.21)	.165 (4.21)
Valance				.117 (3.76)	.111 (4.28)	.185 (-2.01)
Picture				.102** (0.193)	.192 (1.94)	.155* (3.19)
Video				.093* (1.21)	.182 (4.23)	.182** (0.28)
Data-driven				.014* (2.68)	.243 (4.32)	.04 (0.98)
First-person				.152* (-3.51)	.852 (-4.13)	.102 (3.29)
Layer				-.231 (3.42)	.113 (2.13)	.032 (0.14)
Independent Variable						
Topic 1				.019** (1.13)	.193* (3.24)	0.127** (4.23)
Topic 2				.231 (0.271)	.932 (0.271)	0.118 (-2.09)
Topic 3				.001 (0.992)	.242 (1.27)	.209 (3.63)
Topic 4				.004** (2.13)	.187* (2.03)	.019** (1.93)
Topic 5				.015** (4.27)	.051 (9.20)	.003 (-2.09)
Topic 6				.997 (0.181)	.118 (0.381)	.208** (1.02)
Topic 7				.102** (6.21)	.102** (1.291)	.203*** (.887)
Topic 8				.113** (3.58)	.229** (0.173)	.182** (2.07)
Intercept Term	.273*** (2.13)	1.93*** (2.01)	-2.01*** (6.67)	.283** (1.98)	.111** (0.293)	-.812*** (1.21)
N	12548	12548	12548	12548	12548	12548
Pseudo R <sup>2</sup>	0.118	0.128	0.108	0.182	0.199	0.243
Change R <sup>2</sup>				0.064	0.071	0.135

Note: \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

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