What Is a Better Marketing Strategy for Live Streaming Broadcasters? A Topic Model of Social Interactions

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Abstract: Live streaming has spawned a new business model called live-streaming commerce (LSC). Interactive LSC features affect viewer purchasing behavior. This study empirically examines two types of social interactions in danmaku: transaction-oriented and relationship-oriented. Viewers in the first category focus on products and transactions and tend to talk non-emotionally. While relationship-oriented viewers might treat broadcasters as friends, using emotional language in their interactions. Our econometric model shows a curvilinear association of relationship-oriented social interaction and viewer purchase behaviors in LSC, but social interactions have varying effects on viewer purchase behaviors. We discuss implications of heterogeneous social-interaction strategies across different broadcasters.

1. INTRODUCTION

Live Streaming Commerce (LSC) is a flourishing business model in the retail industry due to the rapid growth of mobile internet and live streaming. In China, there are 962 million live-streaming users, with an increase of 28.05 million in 2022. In the US, the number of live-streaming users is expected to reach 164.6 million by 2024. LSC generated $11 billion in online sales in 2021 and is expected to reach $35 billion by 2024. Firms are paying attention to this business model, with 49% planning to increase investment in social commerce in 2022 and 81% planning to maintain or increase investment in LSC to drive sales.

The main contributions of this paper are as follows. First, this study contributes to understanding social interactions in LSC. It categorizes social interactions into transaction-oriented and relationship-oriented types based on topic modeling. Viewers in the former category focus on products and talk non-emotionally, while viewers in the latter category treat broadcasters as friends and use emotional language. This expands relationship marketing and sheds light on social interactions in the LSC context. Second, this study explores how social-interaction strategies affect viewer purchase behaviors in LSC. Compared to transaction-oriented interaction, relationship-oriented interaction leads to higher purchase amounts, as shown by an inverse-U shape relationship. However, given the curvilinear effect, broadcasters should not focus solely on developing the relationship with viewers. Last but not least, this study finds that social interaction strategies in LSC affect viewer purchases differently for broadcasters of varying sizes. Macro broadcasters should focus on building relationships, while smaller ones should balance relationship and transactional interaction.

2. LITERATURE REVIEW

LSC has garnered significant attention from various scholarly angles. While some scholars have examined the factors influencing viewer engagement and sales performance from broadcasters' standpoint[2,4], others have focused on consumer engagement and purchasing behavior from viewers' perspective[1,3,5]. This paper presents a new perspective on social-interaction categories in live-streaming platforms by analyzing the impacts of these categories on viewer purchase behaviors, demonstrating that viewers behave differently based on the transactional or relational nature of their interactions with broadcasters, providing a novel approach to

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understanding the dynamics of LSC interactions.

3. MODEL AND RESULTS

In this section, we first illustrate the topic modeling framework in the latent dirichlet allocation model and explain how we use the technology to uncover different social interactions in live-streaming shows. Based on the social-interaction mining behind word distribution in *danmaku*, we propose several econometric models to explore how different social-interaction categories heterogeneously affect viewers' purchase behaviors, and we try to determine the optimal social-interaction strategy for broadcasters to achieve higher sales.

The result of topic model indicates varying word distributions between the two themes of danmaku. In the transaction-oriented danmaku, high frequency words are associated with products and transactions. Conversely, the relationship-oriented danmaku exhibits a significant proportion of emotion-related words. The results of the fixed effects model show that, on average, broadcasters can increase sales by 25.36% using this social interaction strategy compared to a transaction-oriented social interaction strategy. Moreover, there is an inverse U-shaped relationship between relationship-oriented social interaction and viewer purchase. According to the results of the heterogeneity effect, 70% of relationship-oriented danmaku generated the best sales for macro broadcasters and 50% for micro broadcasters.

4. CONCLUSIONS

Live streaming is increasingly prevalent in our daily lives. A growing number of internet users are opting to watch live streaming shows and make purchases through broadcaster channels. Based on a unique dataset and a text mining tool, this paper takes the first step towards revealing the different social interaction patterns underlying danmaku in LSC and applies relationship marketing theory in the LSC setting. Our fixed-effects model and heterogeneity test results have established the optimal social interaction strategies for broadcasters at various levels to maximize commercial performance. The findings in our paper have important managerial implications for broadcasters to develop optimal live streaming interaction strategies.

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