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Extended Abstract

Effects of background complexity on consumer emotion and purchase intention in live streaming commerce

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Abstract: Visual complexity plays a crucial role in consumer purchase behavior. However, existing research on background complexity in live streaming commerce is limited. Drawing on the stimuli-organism-response (S-O-R) theory, this study aims to explore the relationships between live background complexity, consumers' emotion and purchase intention. A 3×2 between-subjects online experiment was developed to collect the participants' related emotion and intention data. The results primarily indicated that consumers' emotions (i.e., pleasure and arousal) can be evoked by the visual complexity and further positively influence their purchase intention. Consumer emotion shows a nonlinear mediation effect between live complexity and purchase intention. The moderator role of gender in the relationship between complexity and consumer emotion was also examined. The result revealed that the difference between men and women only exists in the pleasure dimension.

Keywords: live streaming, background complexity, emotion, purchase intention, S-O-R

1. INTRODUCTION

As an environmental signal in customer shopping process, the role of visual complexity has been widely investigated in the website, advertisement and other fields. Visual complexity usually refers to the visual richness of the whole interface. Its impact on customers' behavioral intention has also been proven to be mediated by emotion. However, conclusions about how visual complexity facilitates consumer behavior in marketing are inconsistent. Some studies claimed that low complexity promotes fluency processing and greater efficiency^[1]. Some scholars maintained that a stimulus with higher complexity triggers more positive responses^[2]. Others found that their participants usually prefer moderate complexity^[3]. In light of these gaps and confusions, we focus on exploring the relationship between background complexity on consumer emotion and intention in the emerging model of live streaming commerce. The first question this study addressed is: *How does background complexity in live streaming influence consumer emotion (including pleasure and arousal) and subsequently affect purchase intention?* According to previous research, gender is a key factor in the field of marketing. Cyr and Head^[4] highlighted the differences in gender perception of Internet experience, and transfer these differences to their online shopping behavior accordingly. Consequently, the second question is: *Is there a difference between male and female viewers in the processing of live streaming background complexity? How does it affect the emotion?*

2. THEORETICAL FOUNDATION AND HYPOTHESES

According to the Stimulus-Organism-Response model: there are three stages in human behavior: perceiving external or environmental stimulus, interpreting visual information into emotional states, and then reacting toward the stimulus^[5]. Visual complexity has been widely considered as a stimulus to explain consumers' decision-making in the existing research. After interacting with different levels of visual stimuli, consumers' behaviors will

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change accordingly. Such effects are mediated through individuals' emotional states. Compared with low-level complex backgrounds that may feel monotonous, consumers get more interest and pleasure when facing complex backgrounds. However, when it exceeds the user's maximum preferred level, more complexity may not bring pleasure, or even make people annoyed [6]. Understanding a relatively complex environment needs more time and effort, which stimulates higher energies to engage in, leading to higher arousal [3]. However, when its level exceeds the stimulus threshold, such positive effects stop [3]. Thus the background complexity has an inverted U- shape with the emotion.

3. RESEARCH METHODOLOGY AND RESULTS

The questionnaires were distributed through a professional online survey service platform (<https://www.credamo.com/home.html#/>), and participants were Taobao Live Streaming (the most popular e-commerce website) users. After three weeks of collection, we summarised 432 valid questionnaires (Man=179, Woman=253). The relationships proposed in the model are tested by hierarchical regression analysis. It was verified that no severe violations of regression assumptions have existed before conducting the investigations. The results demonstrate that squared background complexity is negatively related to pleasure ($\beta=-1.068$, $p<0.001$) and arousal ($\beta=-0.900$, $p<0.001$). Thus, the inverted U-shaped effects of H1, H2 are supported. Both pleasure ($\beta=0.319$, $p<0.001$) and arousal ($\beta=0.130$, $p<0.01$) bear a significant positive relationship with purchase intention. Thus, H3 and H4 are supported. The gender difference only statistically appears on pleasure ($\beta=-0.822$, $p<0.05$), and there is no significant moderation of gender on the relationship between background complexity and arousal ($\beta=-0.683$, n.s.). Such a result supported H5a but failed to H5b.

4. CONCLUSION AND DISCUSSIONS

This study makes some contributions to the live streaming literature and practice. From a theoretical perspective, this study advances understanding of the role in online purchase intention formation by integrating the direct and indirect effects of background complexity on purchase intention. In addition, this study highlights further the gender differences and discovers that gender plays a significant moderating role in consumers' emotions. In terms of management, managers need to be aware of the influence of visual elements design and optimize the complexity design in the live streaming background. Given the difference between men and women, live marketing practitioners can take advantage of this discovery to improve the purchase of different audience groups in a more targeted way. Platforms can analyze the composition of the live streaming viewers' gender based on the user registration information, so as to design a customized interface to promote consumers' willingness to buy. Considering that this study examined a single aspect of visual complexity, future research will explore other important visual features.

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