

How Background Visual Complexity Influences Purchase Intention in Live Streaming: The Moderating Role of Shopping Task

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Introduction

E-commerce development has led to the rise of live shopping, presenting both opportunities and challenges for online retailers worldwide. Many sellers highlight product and service information directly into the background of live streaming. Such a strategy enhances the visual complexity and provides more information to support buyers' judgment. However, there has been a long debate about whether to use complex designs or simple ones. Advocates of simple designs argue that consumers have limited cognitive capacity and prefer to minimize the cognitive effort required for processing visual objects. On the other hand, proponents of complex designs argue that rich information cues help reduce risk and facilitate the evaluation of visual objects. So in a dynamic environment like live streaming, which already has live commentary and real-time interaction, is there a need for more complex background information? To address this, we propose the concept of visual complexity. Previous studies on visual complexity in live streaming have primarily focused on background decoration and the number of products in the video. In this study, we experimentally manipulate the visual complexity of product information within a live streaming to examine its effects on perceived risk, product attitudes, and purchase intention. We also investigate the moderating effect of consumers' shopping objectives. This study expands the existing theory of visual complexity in live streaming and aims to offer valuable practical insights for online retailers, marketing managers, and live streaming background designers.

Conceptual framework and Hypotheses Development

Visual complexity of an object (e.g., a web page or live streaming screen) refers to the number of elements presented in the object and the level of information detail conveyed by these elements (Deng & Poole, 2010). Geissler et al. (2022) demonstrated that visual complexity increases attitude toward the home page and company purchase intent. Bandodkar and Singh (2015) found that high levels of feature complexity reduce the perceived risk of information leading to initial trust in an online e-vendor. Moreover, others have found that the curving effect of Perceived coordinative complexity on user satisfaction can be moderated by consumers' shopping task (goal-directed vs. experiential) (Nadkarni & Gupta, 2007). Based on this, this paper proposes the following hypothesis:

- H1: Visual complexity (VC) in live streaming has a positive effect on consumers' purchase intention (PI). That is, the higher the visual complexity of the entire live streaming, the higher the consumer's purchase intention.
- H2: The relationship between high visual complexity (compared with low visual complexity) and consumer's purchase intention is serially mediated, such that high visual complexity

enhances consumer's purchase intention through the mediating influence of perceived risk (PR) to the product and, in turn, attitude toward the product (ATP).

H3: Consumers' shopping task (ST) moderates the relationship between visual complexity and purchase intention. That is, when consumers watch live streaming with the purpose of purchase, they are more inclined to choose live streaming with high visual complexity and exhibit higher purchase intentions. When consumers watch live streaming for leisure browsing, they exhibit a higher purchase intention to live streaming with low visual complexity.

Methods

The study was a 2 (visual complexity: high vs. low) \times 2 (shopping task: browse vs. buy) design manipulated between subjects with Wenjuanwang (www.wenjuan.com) in China (N=107, 67% female) completed this study for monetary compensation. Participants were instructed to imagine that they entering a live streaming (browse the items / go shopping for a sunscreen shirt). The high VC group showed detailed product information like fabric, discounts, sizes, and after-sales support, while the low VC group only had product links and comments without additional details. Participants then viewed scenes from both groups of live streaming randomly. Afterwards, Participants were asked to ATP ($\alpha=.93$), and indicated PI ($\alpha=.92$), PR ($\alpha=.97$). Participants also responded to a manipulation check and answered demographic questions.

Results

An independent samples t-test showed that participants were more likely to agree that the high VC condition had a greater level of information coverage compared to the low VC condition ($M_{\text{high}}=5.84$ vs. $M_{\text{low}}=2.39$; $t=15.59$, $p=.000$). Consequently, the manipulation check was successful. We then tested main effect that VC had a positive main effect on PI. Participants in the high VC had higher PI ($M_{\text{high}}=5.29$, $SD=1.16$) than those in the low VC ($M_{\text{low}}=4.16$, $SD=1.81$), $t=3.87$, $p=.000$. Thus, H1 was supported. A two-way ANOVA revealed a significant interaction of VC and ST on PI ($F=34.22$, $p=.000$). When consumers watch live streaming with the purpose of buying something, they are more inclined to choose live streaming with high VC and exhibit higher PI ($M_{\text{high}}=5.49$, $SD=.85$; $M_{\text{low}}=2.88$, $SD=1.53$). When consumers watch live streaming for leisure and browsing purpose, a lower level of VC is associated with higher PI ($M_{\text{high}}=5.05$, $SD=1.46$; $M_{\text{low}}=5.32$, $SD=1.17$). We tested mediational models (PROCESS Model 6) with VC as the independent variable; PR, ATP as the mediator; and PI as dependent variables. Significant indices of mediation were present for PI ($-.8301$; $CI_{95\%} = [-1.2557, -.4610]$). Thus, H2 was supported. We then tested moderational models (PROCESS Model 1) with VC as the independent variable; ST as the moderator; and PI as dependent variables. The results indicated a moderated effect of ST (2.8827 ; $CI_{95\%} = [1.9053, 3.8600]$). Thus, H3 was supported.

Discussion

This article focused on the effects of visual complexity in live streaming. This article found that visual complexity had a positive effect on consumers' purchase intention. Also, it tested the mediating effect of consumers' risk perception, attitude to product and the moderated mediation effect of shopping objective. The results indicated that for consumers with clear shopping goals, high levels of visual complexity can improve product attitudes and further

facilitate purchasing decisions by reducing their perception of risk. Conversely, for consumers for leisure browsing purposes, the lower visual complexity will increase the purchase intention. This paper enriches the relevant theoretical research by exploring the visual complexity in the context of live streaming. In practice, brands can adopt differentiated live streaming strategies according to the special needs of target customers (such as setting time intervals to intersperse background information) to improve consumers' purchase decisions.

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