

Analysis of Consumer Brand Identity and Purchase Decision Model Driven by Social Media Algorithms

Xuesen Yang^{1, *}

¹ Faculty of Business and Management, University College Sedaya International, Kuala Lumpur, Malaysia

* Corresponding Author Email: 3245454406@qq.com

Abstract. Social media algorithms have evolved from simple content distribution tools to key forces shaping consumer cognition, emotions, and behavior. This article systematically reviews the relevant research in the field of social media algorithms and consumer behavior, and proposes a three-dimensional integrated analysis framework of "cognition emotion behavior". Research has found that algorithms change consumers' information exposure patterns and brand perception paths through personalized recommendation mechanisms, achieving a paradigm shift from "people looking for goods" to "goods looking for people". Secondly, the algorithm driven immersive content ecosystem reconstructs the emotional connection between consumers and brands through emotional resonance and social identification. Thirdly, algorithms have a profound impact on the formation process of purchasing decisions by shortening the decision-making process and implementing real-time feedback mechanisms. This article further reveals that while the algorithm effect improves marketing efficiency, it also triggers deep problems such as information cocoons, algorithm bias, and consumer alienation. Future research needs to consider the effectiveness of algorithms and the emotional connection of human brand needs.

Keywords: Social media algorithms, Consumer behavior, Brand identity, Purchase decision.

1. Introduction

Social media algorithms have been deeply embedded in consumers' daily consumption scenarios, becoming an invisible intermediary connecting brands and consumers. Short video platforms represented by TikTok push relevant product information through the personalized recommendation mechanism of the "For You" page when users are not yet aware of their own needs; The algorithm in live streaming e-commerce scenarios can analyze barrage emotions and dynamically adjust product strategies in milliseconds. This transformation, which involves consumers being exposed to what information, when, and with what emotions, is largely predetermined by the sorting logic of the algorithm.

In recent years, Lu, Ding, and Lin conducted a systematic review of the impact of TikTok on Generation Z consumption decisions based on the PRISMA framework, identifying two core impact paths[1]: algorithm recommendation driven product discovery and preference shaping, and expert endorsement and authentic evaluation establishing rational trust; And immersive content triggers emotional resonance and a sense of presence, using fear of missing out (FoMO) and instant gratification to facilitate impulse buying. Xie systematically examined the mechanism by which social media marketing shapes brand loyalty and found that the two-way interaction and authentic narrative of social media can significantly enhance consumers' attitude loyalty and behavioral loyalty[2]. However, algorithm-driven information cocoons and homogenized content can erode long-term brand attachment.

In terms of the deep mechanism of algorithm effects, Zhou revealed that personalized recommendation algorithms may trigger information cocoon effects, generate homogeneous content, and exacerbate social polarization and bias while increasing user engagement [3]. Niu, Li, and Chi pointed out that the ethical issues of algorithms have expanded from traditional accuracy assessments to multidimensional concerns such as content appropriateness, user autonomy, transparency, fairness, and diversity [4].

Based on the above analysis, this article aims to explore the impact of social media algorithms on consumers' brand identity and purchase decision-making mechanisms, reveal the progressive logic and interactive effects between cognitive trust, emotional trust, and behavioral transformation, and provide a more explanatory integrated framework for understanding consumer behavior in the era of algorithms. This study aims to provide theoretical guidance for the design of marketing strategies for brands in algorithmic environments.

2. Cognitive reshaping

2.1. Fundamental Transformation of Consumer Decision Logic

The traditional consumer decision model, such as the EKB model, assumes that consumers actively gather information and make comparisons as rational individuals during the process of "demand identification → information search → solution evaluation → purchase decision → post-purchase behaviour". The first type of operation by social-media algorithms is "content finding users", not "users finding content". According to the above data, such as browsing history, how long a person stays on a page, social connections and location, algorithms can predict what a user will want in terms of products before the user is aware of it. Internalise the demand identification and information search in the traditional consumer decision-making process through algorithms, and change consumers from "decision-makers" to "responders".

2.2. Dual Paths Recommended by Algorithm

Most of the technical implementations of recommendation systems for social media and e-commerce platforms fall into two main categories: collaborative filtering and content-based recommendation. Collaborative filtering recommendations indirectly motivate a desire to purchase by boosting people's social self-concept, and at the same time, content-based recommendations enhance a sense of self and offer autonomy and control to individuals.

2.3. Algorithm Domestication and Cognitive Narrowing

Algorithms help people find 'brands' and, at the same time, create cognitive silos by continuously filtering information. Recommendation Algorithms have an indirect domestication effect on digital brand communication. It restricts the scope of consumption for consumers and, through repeated dissemination of uniform content, forms a single-brand image. It is in agreement with the idea of an "information bubble". Algorithms continuously reinforce the user's current interests based on past behaviour, thus reducing the chances of encountering other brands.

3. Algorithm-driven emotional connection and brand identity

3.1. From Cognitive Trust to Emotional Trust

The construction of a brand's identity also needs to evoke emotions and psychology in people's minds. Algorithms for social media have recently begun to offer users an emotionally resonant experience via cold-start data matching.

Based on PRISMA, the first two paths of algorithm-driven consumer decision-making in a systematic review are cognitive trust and affective trust. The former discovers products and moulds preferences through algorithmic recommendations, builds rational trust via expert endorsements and authentic evaluations; the latter is driven by emotional resonance and a sense of presence from immersive content, utilises fear of missing out (FoMO) and instant gratification psychology, and thus prompts impulsive purchases [5].

The special feature of the emotional trust path is that the algorithm recommends information that consumers need, as well as emotionally pleasing experiences for them. When users are moved by the content of a certain brand in a short video, the algorithm recognizes this emotional signal and

continues to recommend other videos that evoke similar emotions, thus creating a chain reaction of "emotional resonance brand memory attitude transfer". In this way, the creation of a brand image will no longer need to be repeated or rationally explained; rather, a sense of rhythm can be created in people's emotions.

3.2. Intermediaries of Social Identity

The first feature of Social Media that differs from traditional media is that it is social. Now, the brand's message is not only transmitted in a single direction but also spread through the social networks of individuals via word-of-mouth recommendations among friends, expert opinions, and personal experiences posted by ordinary people. An algorithm determines how widely social indicators (such as likes, comments, shares) spread according to the content.

Research has shown that the credibility of user-generated content (UGC) can be used to connect social media activities with brand loyalty. At this time, opinion leaders (KOLs) have been paying more attention to algorithms that enhance emotional arousal, and influencers naturally meet this demand by sharing personalised stories full of emotion.

3.3. Brand Emotional Marketing in the Algorithm Era

At present, some technology has been introduced to observe the emotions of people in daily life. Technology is used to recognise facial expressions, voice-tone changes, and other emotional indicators in people, and then marketing strategies are customised according to how they make people feel. The "intelligent field control system" of Kwai E-commerce can analyze the emotion shown on the bullet screen in the live broadcast room in real time and automatically adjust the speaker's script and the rhythm of goods on the shelves; this is a typical example of such a trend [6].

In short, "emotional marketing" now focuses on how to evoke emotions in people's hearts; at the same time, algorithms can be used to tailor this experience based on people's emotions in real time.

4. Behavior conversion

4.1. Decision Link Refactoring

The most direct impact of algorithms on consumer behavior is reflected in the fundamental reconstruction of the decision-making process. The traditional marketing funnel model (AIDA: Attention Interest Desire Action) is compressed into a very short "grass planting pulling" loop in the algorithmic environment.

Empirical research on Generation Z consumers shows that their consumption path has evolved from a linear process to a spiral closed-loop structure of "seeding verification purchase posting". In this structure, each link may trigger a new round of algorithm response: after the user "plants grass" for a certain brand, the algorithm will continue to push relevant information to accelerate decision-making; The behavior of "posting" becomes the starting point for new users to "plant grass" and form a chain of dissemination. This closed loop makes the traditional "exposure conversion" causal chain difficult to track - the relationship between brand exposure and purchasing behavior is no longer linear, but emerges in the complex interaction of algorithms, social media, and content[7].

The transition from "people looking for goods" to "goods looking for people" best illustrates the essence of this change. When the platform can accurately push products to potential consumers through algorithms, the logic of "making consumers remember the brand" in traditional marketing has partially given way to the logic of "making algorithms remember consumers". The role of brand identity has also changed accordingly. It is not that consumers first form brand identity before making a purchase, but they gradually form identity through repeated purchases recommended by algorithms.

4.2. Reshaping the Trust Mechanism

In traditional consumer scenarios, the establishment of brand trust relies on the long-term accumulation of product quality, word-of-mouth communication, and marketing communication. In the algorithm driven social media environment, algorithms themselves are becoming a new trust intermediary.

Research has found that some users who heavily rely on algorithm recommendations show high trust in the recommended products, forming a strong platform dependence. The essence of this trust is the trust in the algorithm, where consumers believe that the system's recommendations should be correct and transfer their original trust in the brand to the recommendation system. On the one hand, it lowers the trust building threshold for new brands (as long as they are recommended by algorithms, they may gain trust); On the other hand, it also makes brand trust fragile. Once algorithm recommendations make mistakes (such as pushing low-quality products), consumer trust may overflow from the brand to distrust of the entire recommendation system [8].

4.3. Erosion of Loyalty and Trust

The impact of algorithms on purchasing decisions is not unidirectional. Some studies describe this phenomenon as the "selective exposure economy" - algorithms customize personalized information environments for each user, which can either reinforce existing preferences (leading to deepening brand loyalty) or trigger aesthetic fatigue and resistance due to excessive narrowness (leading to erosion of brand trust).

This polarization phenomenon reveals that there may be a conflict between the commercial value of algorithms in improving the efficiency of a single conversion and the health of long-term consumer relationships. The algorithm optimization strategy that pursues short-term conversion rates may inadvertently erode the long-term trust relationship between brands and consumers [9].

5. Limitations and Future Prospects

Current researchers have identified several key channels through which algorithms affect consumer decision-making, covering different levels such as cognitive trust, emotional trust, and social identity, thus building a preliminary explanatory chain from technical implementation to psychological response. Secondly, the academic community does not simply view algorithms as universal determinants, but rather recognizes the moderating role played by product attributes and user characteristics. This contextualized perspective helps to avoid overly simplified technological determinism. Once again, an increasing number of studies are beginning to acknowledge the complexity of algorithmic effects, and while focusing on commercial efficiency, they are also bringing algorithmic governance and ethical risks into the scope of discussion.

However, due to the high concentration of research subjects on a few head platforms. A large number of empirical studies take short video platforms such as TikTok and Tiktok as the scenarios, which makes the extent to which the conclusions can be extended to other types of social media (such as small red books based on images and texts, WeChat ecology based on social relationship chain, etc.) still lack full verification. On the other hand, it is worth reflecting on the predetermined value orientation of research. The discussion on normative issues such as weakened consumer autonomy and distorted consumer attitudes that algorithms may cause is not yet sufficient, which to some extent limits the critical depth and social care of research in this field. Current research generally implicitly regards algorithms and consumers as two independent entities, exploring the impact of the former on the latter. But in the reality where algorithms have been deeply integrated into daily life, consumer preferences, identification, and behavior are more like co-generated through continuous interaction with algorithms. Future research can draw on existing concepts such as "algorithm domestication" and shift the focus from "what algorithms do to consumers" to "what consumers and algorithms jointly construct", in order to be closer to the dynamic relationships in the real world.

In addition, generative AI technologies represented by large-scale language models are reshaping the way consumers obtain information and produce content. When users can directly obtain product comparison information or generate personalized consumption content through conversational AI, the existing recommendation algorithm logic may undergo a round of reconstruction. The impact mechanism of this technological change on brand identity construction and purchase decision formation currently lacks sufficient academic exploration and urgently requires forward-looking research to respond.

6. Conclusion

This paper has built a three-dimensional integrated system of "cognition - emotion - behaviour" to explore how consumer brand identity is created and what drives purchasing decisions in algorithmic environments. Algorithms have modified the basic linear logic of traditional consumer decision-making: at the cognitive level, personalised recommendations have substituted consumers' active information-seeking behaviour; in the construction of brand cognition, the user-led model has been altered to an algorithm-user joint participation model; at the emotional level, algorithms enhance the psychological bond between consumers and brands by finely tuning the emotional atmosphere of content and strengthening social signals to build emotional trust as a primary source of brand identity; finally, in behaviour, algorithms have improved the efficiency of consumption conversion by shortening the contact-to-purchase path and serving as new trust intermediaries, but at the same time have caused side effects such as behavioural polarisation and trust fragility.

Research has shown that brands need to be both efficient in the short run and build relationships for the long run through algorithms; at the same time, they should avoid cognitive narrowing and emotional manipulation. In the future, with the spread of generative artificial intelligence, it will be difficult to distinguish between created works and the people who share them; at the same time, the interaction between people and algorithms will also become more sophisticated. The first issue the area will continue to face is how to promote technological innovation and protect consumer rights at the same time.

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