"Algorithmic Affection: The Role of Robot Acceptance in Parasocial Interactions with Virtual Influencers (VIs)"

Rawan Diaa
German International University
Sandra Habil
German International University

Cite as:
Diaa Rawan, Habil Sandra (2025), "Algorithmic Affection: The Role of Robot Acceptance in Parasocial Interactions with Virtual Influencers (VIs)". *Proceedings of the European Marketing Academy*, (130351)

Paper from the 16th Annual Fall EMAC Conference, Istanbul, Turkey, September 17-19, 2025

"Algorithmic Affection:
The Role of Robot Acceptance in Parasocial Interactions with Virtual Influencers (VIs)"

Abstract

Virtual influencers (VIs) are reshaping the landscape of digital marketing by simulating human presence and creating emotional bonds with audiences. While their popularity continues to rise, the psychological mechanisms that drive consumer attachment to these non-human entities remain underexplored. This study aims to bridge this gap by examining how the Robot Acceptance Model (RAM) influences the development of parasocial interactions (PSIs) with VIs. Specifically, the study investigates how RAM's socio-emotional dimensions—perceived humanness, social interactivity, and social presence—foster emotional engagement and trust, leading to the formation of one-sided, yet meaningful, relationships. By proposing a conceptual framework that integrates RAM with PSI theory, the objective is to uncover the underlying factors that make VIs emotionally compelling and socially influential. The study offers both theoretical contributions to the understanding of human-AI relationships and practical insights for marketers seeking to enhance engagement, trust, and loyalty through VIs.

Keywords: *Virtual Influencers (VIs), Robot Acceptance Model, Para-Social Interactions (PSIs)*

Track: *Marketing and Technology Interaction*

1. Introduction

Influencer marketing has become a key branding tool for Gen Z and Gen Y, expected to generate $33 billion by 2027. Since 2016, virtual influencers (VIs), AI-generated entities with human-like traits, have emerged as competitors to human influencers (Jhawar et al., 2023). While VIs is created using CGI, their content is increasingly shaped by AI (Conti et al., 2022). VIs has a strong social media presence, with Lil Miquela, a VI with over 3 million followers, named one of TIME's most influential internet personalities (Lou et al., 2023). VIs offers benefits over human influencers, such as greater adaptability, customization, and limitless storytelling (Sands et al., 2022). They are particularly effective in luxury and tech sectors, where brand image control is crucial, with brands like Parda, Dior, and Samsung using VIs like Candy, Noonoouri, and Sam (Baudier et al., 2023).

Recently, scholars have increasingly examined the effectiveness of VIs, raising questions about whether they could replace traditional human influencers. Many studies suggested that VIs is perceived as less credible and authentic than human influencers (Lou et al., 2023; Sands et al., 2022). This prompts the question: Why do consumers follow VIs despite their lower perceived credibility and authenticity? Furthermore, under what conditions could VIs be seen as more reliable than their human counterparts? As consumers become more interested in forming emotional connections and long-term relationships with VIs (Melnychuk et al., 2023), this trend has sparked academic interest, highlighting the need to explore the underlying theories behind the rise of VIs in marketing. Therefore, this study aims to conceptualize the link between the Robot Acceptance Model and parasocial relationships with VIs, posing the research question: "How do the socio-emotional dimensions of the Robot Acceptance Model influence the formation of parasocial interactions with virtual influencers??"

2. Literature Review

2.1 Virtual Influencers (VIs) Overview

VIs has emerged as a significant trend in influencer marketing, gaining widespread popularity since 2020. These digitally-created, computer-generated personas are designed with human-like characteristics and distinct personalities, functioning as digital avatars that offer comparable advantages to traditional human influencers (Jhawar et al., 2023). Sands et al. (2022, p.

778) defined a VI as “an entity, either human-like or otherwise, that operates autonomously through artificial intelligence and appears as an interactive, real-time rendered entity in a digital environment.” Examples range from Lil Miquela (human-like) and Kizuna AI (2D cartoon) to bee_nfluencer (animalistic) and Nobody Sausage (abstract). Brand VIs like Colonel Sanders and Daisy also exist. VIs reflects global diversity in type, race, and nationality e.g., Rozy (South Korea), Shudu (South Africa), Lu of Magalu (Brazil), and Lil Miquela (American-Brazilian) (Ma & Li, 2024). These VIs have gathered substantial followings, establishing themselves as leading figures in the virtual influencer landscape (Yang et al., 2024). Much like their human counterparts, VIs has unique identities, enabling authentic and engaging interactions with their audiences in digital spaces (Arsenyan & Mirowska, 2021). Given their rising prevalence and substantial commercial appeal, VIs is increasingly recognized by the mega brands as powerful tools for enhancing brand endorsement effectiveness.

Allal-Chérif et al. (2024) emphasized that human-like VIs, especially those who live out narratives similar to real influencers, perform remarkably well on platforms like TikTok and Instagram by fostering high levels of trust. These VIs are perceived as credible, knowledgeable, and relatable. Likewise, Liu and Lee (2024) highlighted that VIs’ realistic appearance, unique personalities, and human-like characteristics drive high engagement and interaction, while also making them seem more trustworthy and accountable.

2.2 Robot Acceptance Model

Human-robot interactions (HRIs) are not new phenomenon as they have been extensively studied over the years. As an emerging field, HRI research explores the dynamics of communication between humans and robots (Mukherjee et al., 2022). However, Fuentes-Moraleda et al. (2020) suggested that HRI research should extend beyond the focus on adoption, ease of use, or human perceptions of new technology. They advocate for prioritizing the study of how humans engage with robots to establish meaningful relationships.

Wirtz et al. (2018) transformed the HRI by developing the Service Robot Acceptance Model (sRAM), which explains the interaction between robots and humans. This model proposes that consumer acceptance of service robots depends on three key factors: functional, relational, and social-emotional elements. First, the functional element is grounded in the Technology Acceptance Model (TAM), which includes perceived ease of use and perceived usefulness. Ease of use refers to

the extent to which a technology is effortless to use, while perceived usefulness measures how much the technology enhances job performance (Singh & Sinha, 2023). In the context of VIs, a robot's human-like qualities enhance its social presence and competence, thereby increasing its perceived usefulness and boosting user satisfaction (Kim & Park, 2024).

Second, the relational elements of sRAM include rapport and trust. Rapport refers to the harmonious interaction between individuals, often described as "clicking" or having chemistry (Seo et al., 2018). Relatedly, Sands et al. (2022) argued that VIs can foster rapport, increase connectedness, and provide emotional support, helping to reduce stress and boost self-esteem. On the other hand, trust is a critical factor in human-robot interaction and influences the willingness to use robots. When individuals perceive more human-like traits to a robot such as emotions or rationality, their perception of its competence increases as this anthropomorphism enhances trust (Alboqami, 2023).

The social-emotional dimension, as Wirtz et al. (2018) argued, is crucial for robots, including VIs to gain acceptance by meeting individuals' social-emotional needs. This involves three key elements: perceived humanness, social interactivity, and social presence. Perceived humanness, defined by Söderlund and Oikarinen (2021) as "the extent to which an individual exhibit characteristic typical of humans," includes physical appearance and attractiveness (Baudier et al., 2023). Research showed that perceived humanness significantly influences behavioral intentions, with studies by Boissieu and Baudier (2023) emphasizing its importance for trust, while Bernotat et al. (2021) found that robots with female body shapes foster greater trust.

Social interactivity reflects a VI's perceived knowledge and skill, with socially intelligent and expert VIs seen as more credible and trustworthy. This is especially true in sensitive areas like body positivity (Koles et al., 2024). Perceived social presence, or "co-presence," also enhances trust. VIs with higher social presence are viewed as more reliable, particularly in e-commerce contexts (Kim & Park, 2023; Wirtz et al., 2018). Together, these elements foster parasocial interactions and deepen consumer relationships (Chung & Cho, 2017).

2.3 Source Credibility Theory

Source credibility theory, initially introduced by Hovland et al. (1953), deployed that the credibility of a message can be significantly influenced by two fundamental characteristics of the

source: trustworthiness and expertise. In essence, this theory explains how specific attributes of the message source play a critical role in enhancing the perceived credibility of the message, thereby increasing the likelihood that consumers will accept and trust the information presented (Han & Chen, 2021). Yılmazdoğan et al. (2021) highlighted that trustworthy endorsers strongly influence brand and ad evaluations, and consumer decisions by boosting positive attitudes, purchase intent, and word-of-mouth. This is especially relevant for virtual influencers, as Alboqami (2023) emphasized their role in building credibility, long-term consumer relationships, and brand trust.

In addition, the source's perceived knowledge, professionalism, and skill often transfers to endorsed brands through positive associations (Yılmazdoğan et al., 2021). In the context of VIs, it significantly enhances their credibility and ability to influence followers (Byun & Ahn, 2023). Additionally, attractive endorsers are more likely to be trusted and liked, leading to parasocial relationships between the influencer and the follower. Over time, this appeal can shift from physical to social attraction (Kurtin et al., 2018).

2.4 Trust and Emotional Engagement

Emotional engagement, as defined by Kowert and Daniel (2021, p. 3), refers to viewers' intrinsic motivation and enthusiasm for participation. It is a key factor in shaping the relationship between media personas and consumers. Research showed that emotional engagement is vital for understanding how PSIs with media figures can lead to social and emotional benefits (Kowert & Daniel, 2021; Lim et al., 2020). In the context of VIs, Vazquez et al. (2020) highlighted that emotional engagement is essential for forming strong PSIs. The deeper the emotional connection, the stronger the parasocial bond with the VI (Zhou et al., 2024). Additionally, emotionally engaged consumers are more likely to invest time in VI content, increasing interactions and fostering trust and loyalty (Yu et al., 2024).

On the other hand, Trust in VIs refers to consumers' belief in their reliability, credibility, and competence (Yu et al., 2024). However, research on trust in VIs is still questionable. Some studies suggest that VIs is less trustworthy than human influencers due to their brand-controlled nature, which raises concerns about authenticity (Sands et al., 2022). Conversely, Alboqami (2023) argued that VIs can be seen as credible, knowledgeable sources, fostering long-term relationships and enhancing brand trust (Yu et al., 2024). When VIs has human-like traits, they can build parasocial relationships, deepening consumer connections (Lim et al., 2023; Lou et al., 2020).

2.5 Para-Social Relationship Theory

The concept of parasocial interaction (PSI), first introduced by Horton and Wohl (1956), has become a foundational framework in communication and media studies. PSI describes the extent to which individuals perceive media figures as social partners. Often used interchangeably with parasocial relationships, PSI reflects a perceived bond between a media user and a media persona. According to Gong (2020), PSI is defined by two core features: one-sided psychological engagement where users experience a seemingly typical social relationship with a media figure, and illusory mutual awareness the imagined sense that the media persona is aware of the user. Despite knowing the interaction is not real, users often perceive PSI as emotionally reciprocal and socially meaningful.

In the branding context, PSI theory plays a crucial role in fostering consumer–brand relationships, ultimately enhancing branding outcomes. Emotional attachment to advertising characters can heighten consumer engagement with the promoted products (Jin et al., 2021). Chung and Cho (2017) highlighted that consumers often transfer their affection for familiar or beloved characters to the brands they endorse. This dynamic extends to influencer marketing, where influencers build emotional bonds with followers through self-disclosure and narrative-driven content. Once established, these relationships stimulate curiosity about influencers' lifestyles and brand preferences, leading to increased receptiveness to persuasive messages (Shen et al., 2022).

3. Theoretical Foundation and Research Propositions

While research on VIs is gaining much attention recently, it still lacks clear insights into effective brand collaboration strategies (Ferraro et al., 2024). Gaps remain in understanding how consumers perceive VIs, their motivations to follow them (Lou et al., 2023), and their attitudinal and behavioral responses (Belanche, Casaló, & Flavián, 2024). First, this study addresses the need for conceptualization evidence on how VI attributes influence consumer engagement and message acceptance (Davlembayeva et al., 2025). Despite the increasing presence of service robots in everyday life, substantial gaps remain in understanding how customers perceive and respond to their social attributes.

Specifically, there is limited insight into what shapes customer perceptions of a robot's humanness, social interactivity, and social presence as critical factors influencing user acceptance

and satisfaction. In other words, how customers interpret the robots' attributes is still underexplored. While the TAM (Davis, 1989) highlights perceived usefulness and ease of use as key drivers of technology adoption, it does not fully account for the social-emotional and relational aspects inherent in many service encounters (Stock & Merkle, 2018). Therefore, extending TAM to incorporate these socio-relational dimensions is essential to better understand and predict consumer responses to socially interactive service robots (Wirtz et al. 2018).

Second, source credibility remains underexplored in the context of VIs. Researchers call for studies on the factors that attract consumers to VIs (Jawaher et al., 2023; Suprawan & Pojanavatee, 2022). Third, the emotional relationship between consumers and VIs, particularly in parasocial interactions, still a questionable area (Deng & Jiang, 2023; Farivar et al., 2021). While VIs is designed to mimic emotional and social engagement, it's unclear if they can form genuine emotional bonds (Dondapati & Dehury, 2024). Such uncertainty highlights concern about emotional manipulation and calls for further research into the psychological dynamics of consumer-VI attachment (Hewapathirana & Perera, 2024).

Finally, research on the antecedents of PSI remains limited (Melnychuk et al., 2023), though source credibility is often cited as a key factor in forming strong parasocial bonds with human influencers (Lou, 2023). PSIs are one-sided connections where individuals feel a false sense of mutual interaction with media figures. Higher source credibility can strengthen PSIs and increase purchase intentions (Rungruangjit, 2022). There is a notable gap in the literature regarding the source credibility of VIs, particularly concerning non-human attributes and how they influence parasocial interaction (Melnychuk et al., 2023).

While much attention has been given to visual appeal and credibility, the impact of parasocial relationships on message interpretation and acceptance remains underexplored (Agnihotri et al., 2024; Farivar et al., 2021; Liu et al., 2023). While the source credibility model has been shown to enhance PSIs between consumers and VIs, prior research has not examined these relationships through the lens of the robot acceptance model (Boissieu & Baudier, 2023). To address the previously mentioned gaps, there are the proposed research questions, propositions, and conceptual framework.

RQ. How do the socio-emotional dimensions of the Robot Acceptance Model influence the formation of parasocial interactions with virtual influencers?

P1: The higher VIs perceived humanness, the greater the perceived credibility.

P2: The more VIs is socially interactive, the greater the perceived credibility.

P3: The stronger VIs perceived social presence, the greater the perceived credibility.

P4: Greater source credibility of the VIs enhances consumers' trust in the influencer.

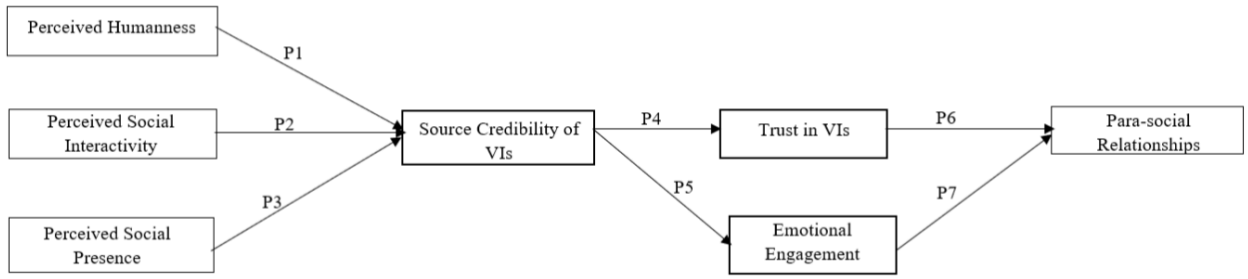
P5: Greater source credibility of the VIs enhances consumers' emotional engagement with the influencer.

P6: VIs trust has a positive influence on para-social relationship.

P7: Emotional engagement has a positive influence on para-social relationship.

Conceptual Framework

Socio-emotional Dimensions



(Model developed by the researchers)

4. Conclusion

This study explored the intersection of the Robot Acceptance Model and Parasocial Interaction Theory in the context of VIs. It proposed that the model's socio-emotional dimensions can be integrated with the source credibility theory to build trust and emotional connections with VIs. When VIs display human-like traits and social intelligence, their perceived credibility increases, fostering trust and emotional engagement that may lead to lasting consumer-VI relationships. While this conceptual framework provides a solid foundation, future research should empirically validate the model, explore its application across different VI types and product categories, and further examine trust formation. Additionally, investigating consumer personality traits could offer deeper insight into individual differences in VI acceptance and interaction.

This study offers three key contributions. First, it extends the Service Robot Acceptance Model to VIs context, highlighting their social-emotional capabilities beyond TAM's functional focus.

Second, it reframes Source Credibility Theory by positioning humanness, interactivity, and social presence as drivers of perceived credibility. Third, it advances Parasocial Interaction Theory by illustrating how VIs can foster emotional bonds with users. Practically, it guides brands in designing socially engaging VIs to build trust and long-term consumer relationships.

References

Agnihotri, D., Chaturvedi, P., & Tripathi, V. (2025). "Virtual bonds and actual transactions": investigating the impact of virtual influencers' credibility on buying behavior through virtual engagement. *Journal of Communication Management*, *29*(1), 35-52.

Allal-Chérif, O., Puertas, R., & Carracedo, P. (2024). Intelligent influencer marketing: how AI-powered virtual influencers outperform human influencers. *Technological Forecasting and Social Change*, *200*, 123113.

Arsenyan, J., & Mirowska, A. (2021). Almost human? A comparative case study on the social media presence of virtual influencers. *International Journal of Human-Computer Studies*, *155*, 102694.

Baudier, P., de Boissieu, E., & Duchemin, M. H. (2023). Source credibility and emotions generated by robot and human influencers: the perception of luxury brand representatives. *Technological Forecasting and Social Change*, *187*, 122255.

Bernotat, J., Eyssel, F., & Sachse, J. (2021). The (fe) male robot: how robot body shape impacts first impressions and trust towards robots. *International Journal of Social Robotics*, *13*(3), 477-489.

Byun, K. J., & Ahn, S. J. (2023). A systematic review of virtual influencers: Similarities and differences between human and virtual influencers in interactive advertising. *Journal of Interactive Advertising*, *23*(4), 293-306.

Chung, S., & Cho, H. (2017). Fostering parasocial relationships with celebrities on social media: Implications for celebrity endorsement. *Psychology & marketing*, *34*(4), 481-495.

Davlembayeva, D., Chari, S., & Papagiannidis, S. (2025). Virtual influencers in consumer behaviour: A social influence theory perspective. *British Journal of Management*, *36*(1), 202-222.

Deng, F., & Jiang, X. (2023). Effects of human versus virtual human influencers on the appearance anxiety of social media users. *Journal of Retailing and Consumer Services*, *71*, 103233.

Dondapati, A., & Dehury, R. K. (2024). Virtual vs. Human influencers: The battle for consumer hearts and minds. *Computers in Human Behavior: Artificial Humans*, *2*(1), 100059.

Gong, W. (2021). Effects of parasocial interaction, brand credibility and product involvement on celebrity endorsement on microblog. *Asia Pacific Journal of Marketing and Logistics*, *33*(6), 1437-1454.

Hewapathirana, I. U., & Perera, N. (2024). Navigating the age of AI influence: A systematic literature review of trust, engagement, efficacy and ethical concerns of virtual influencers in social media.

Horton, D., & Richard Wohl, R. (1956). Mass communication and para-social interaction: Observations on intimacy at a distance. *psychiatry*, *19*(3), 215-229.

Hovland, C. I. (1953). Credibility on Communication.

Jhawar, A., Kumar, P., & Varshney, S. (2023). The emergence of virtual influencers: a shift in the influencer marketing paradigm. *Young Consumers*, *24*(4), 468-484.

Jin, S. V., Ryu, E., & Muqaddam, A. (2021). I trust what she's# endorsing on Instagram: moderating effects of parasocial interaction and social presence in fashion influencer marketing. *Journal of Fashion Marketing and Management: An International Journal*, *25*(4), 665-681.

Kim, H., & Park, M. (2024). When digital celebrity talks to you: how human-like virtual influencers satisfy consumer's experience through social presence on social media endorsements. Journal of Retailing and Consumer Services, 76, 103581.

Koles, B., Audrezet, A., Moulard, J. G., Ameen, N., & McKenna, B. (2024). The authentic virtual influencer: Authenticity manifestations in the metaverse. *Journal of Business Research*, *170*, 114325.

Kowert, R., & Daniel Jr, E. (2021). The one-and-a-half sided parasocial relationship: The curious case of live

streaming. *Computers in human behavior reports*, *4*, 100150.
Kurtin, K. S., O'Brien, N., Roy, D., & Dam, L. (2018). The development of parasocial interaction relationships on YouTube. *The Journal of Social Media in Society*, *7*(1), 233-252.
Liu, F., & Lee, Y. H. (2024). Virtually responsible? Attribution of responsibility toward human vs. virtual influencers and the mediating role of mind perception. *Journal of Retailing and Consumer Services*, *77*, 103685.
Lou, C. (2022). Social media influencers and followers: Theorization of a trans-parasocial relation and explication of its implications for influencer advertising. *Journal of advertising*, *51*(1), 4-21.
Lou, C., Kiew, S. T. J., Chen, T., Lee, T. Y. M., Ong, J. E. C., & Phua, Z. (2023). Authentically fake? How consumers respond to the influence of virtual influencers. *Journal of Advertising*, *52*(4), 540-557.
Ma, Y., & Li, J. (2024). How humanlike is enough?: Uncover the underlying mechanism of virtual influencer endorsement. *Computers in Human Behavior: Artificial Humans*, *2*(1), 100037.
Melnychuk, H. A., Arasli, H., & Nevzat, R. (2024). How to engage and attract virtual influencers' followers: a new non-human approach in the age of influencer marketing. *Marketing Intelligence & Planning*, *42*(3), 393-417.
Mukherjee, D., Gupta, K., Chang, L. H., & Najjaran, H. (2022). A survey of robot learning strategies for human-robot collaboration in industrial settings. *Robotics and Computer-Integrated Manufacturing*, *73*, 102231.
Rungruangjit, W. (2022). What drives Taobao live streaming commerce? The role of parasocial relationships, congruence and source credibility in Chinese consumers' purchase intentions. *Heliyon*, *8*(6).
Sands, S., Ferraro, C., Demsar, V., & Chandler, G. (2022). False idols: Unpacking the opportunities and challenges of falsity in the context of virtual influencers [Article]. Business Horizons, 65(6), 777-788.
Seo, S. H., Griffin, K., Young, J. E., Bunt, A., Prentice, S., & Loureiro-Rodríguez, V. (2018). Investigating people's rapport building and hindering behaviors when working with a collaborative robot. *International Journal of Social Robotics*, *10*, 147-161.
Shen, H., Zhao, C., Fan, D. X., & Buhalis, D. (2022). The effect of hotel livestreaming on viewers' purchase intention: Exploring the role of parasocial interaction and emotional engagement. *International Journal of Hospitality Management*, *107*, 103348.
Singh, N., & Sinha, N. (2020). How perceived trust mediates merchant's intention to use a mobile wallet technology. *Journal of retailing and consumer services*, *52*, 101894.
Söderlund, M., & Oikarinen, E. L. (2021). Service encounters with virtual agents: an examination of perceived humanness as a source of customer satisfaction. *European Journal of Marketing*, *55*(13), 94-121.
Stock, R. M., & Merkle, M. (2018). Can humanoid service robots perform better than service employees? A comparison of innovative behavior cues.
Suprawan, L., & Pojanavatee, S. (2022). What causes social media users to engage and mimic virtual influencers? The role of self-congruity. *Innovative Marketing*, *18*(4), 148-160.
Vazquez, D., Wu, X., Nguyen, B., Kent, A., Gutierrez, A., & Chen, T. (2020). Investigating narrative involvement, parasocial interactions, and impulse buying behaviours within a second screen social commerce context. *International Journal of Information Management*, *53*, 102135.
Yang, D., Zhang, J., Sun, Y., & Huang, Z. (2024). Showing usage behavior or not? The effect of virtual influencers' product usage behavior on consumers. *Journal of Retailing and Consumer Services*, *79*, 103859.
Yılmazdoğan, O. C., Doğan, R. Ş., & Altıntaş, E. (2021). The impact of the source credibility of Instagram influencers on travel intention: The mediating role of parasocial interaction. *Journal of Vacation Marketing*, *27*(3), 299-313.
Yu, T., Teoh, A. P., Bian, Q., Liao, J., & Wang, C. (2025). Can virtual influencers affect purchase intentions in tourism and hospitality e-commerce live streaming? An empirical study in China. *International Journal of Contemporary Hospitality Management*, *37*(1), 216-238.
Zhou, Q., Li, B., Li, H., & Lei, Y. (2024). Mere copycat? The effects of human versus human-like virtual influencers on brand endorsement effectiveness: A moderated serial-mediation model. *Journal of Retailing and Consumer Services*, *76*, 103610.