

The Influence of Recommendation Algorithms on Consumer Decision-Making on Digital Platforms through Personalisation, Visibility, and Feedback Loops

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Abstract: This paper examines how recommendation algorithms shape consumer decision-making on digital platforms by reorganising the information environment in which consumers discover and evaluate alternatives. Drawing on prior research on recommender systems, algorithmic visibility, consumer choice, and platform engagement, it develops a conceptual account of five connected mechanisms: personalisation, visibility, repeated exposure, consideration set formation, and behavioural feedback loops. The analysis indicates that recommendation systems influence decisions primarily before purchase by prioritising selected content, increasing the familiarity and cognitive accessibility of repeatedly encountered options, and narrowing the alternatives that enter consumers' consideration sets. A Fiji travel recommendation example illustrates how an initially unfamiliar destination may become a realistic option through repeated algorithmic exposure without determining the final choice. The paper further argues that consumer–platform interaction is recursive: user activities generate behavioural data that refine subsequent recommendations, while platform objectives such as engagement and retention also shape recommendation optimisation. Recommendation algorithms therefore neither function as neutral information tools nor exercise complete control over consumers. Rather, they structure decision environments while consumers retain agency to interpret and evaluate the options presented.

Keywords: Recommendation algorithms, Consumer decision-making, Personalisation, Algorithmic visibility, Consideration sets, Feedback loops

1. Introduction

In contemporary digital platforms, consumers increasingly discover products, services, and experiences through algorithmically curated environments rather than through traditional search processes. Platforms such as Instagram, TikTok, and other content-based applications continuously recommend personalised content based on users' previous interactions, browsing behaviours, and engagement patterns. As recommendation algorithms become embedded into everyday digital consumption, they no longer function only as technical systems for retrieving information. Instead, they increasingly shape the environment in which consumers encounter, evaluate, and make decisions about different choices.

The growing influence of recommendation algorithms has attracted considerable academic attention. Earlier research primarily examined recommender systems from a technical perspective, focusing on improving prediction accuracy and matching users with relevant information. These studies established the fundamental mechanisms through which recommendation systems analyse user data and generate personalised suggestions [1]. However, as algorithmic systems have become central components of social media and digital commerce platforms, their influence has expanded beyond information retrieval. Algorithms increasingly participate in organising visibility, attention, and consumer experiences by determining which information becomes more prominent within digital environments [2][3].

Although existing studies have provided important insights into algorithmic recommendation, an important research gap remains. Previous research has often focused on algorithm performance, user engagement, or immediate consumption outcomes, while less attention has been given to the gradual process through which algorithms influence consumer decisions before purchase. In particular, consumers on digital platforms often encounter products and experiences through recommended feeds

rather than through deliberate searches. Therefore, understanding how algorithmic systems shape earlier stages of decision-making, including information exposure, attention formation, and option evaluation, is essential for explaining their broader influence on consumer behaviour.

This paper addresses this research gap by examining how recommendation algorithms shape consumer decision-making on digital platforms. Rather than arguing that algorithms directly control consumer choices, this paper proposes that algorithms influence decisions by organising the information environment in which choices are discovered and evaluated. Through personalisation, algorithmic visibility, and repeated exposure, recommendation systems influence which options become more noticeable and more likely to enter consumers' consideration sets.

Accordingly, this paper explores two research questions:

RQ1: How do recommendation algorithms shape the process through which consumers discover and evaluate potential choices?

RQ2: Through what mechanisms do algorithmic recommendations influence consumer decision-making on digital platforms?

To answer these questions, this paper first examines the relationship between recommendation algorithms, behavioural data, and consumer decision-making. It then analyses how personalisation and algorithmic visibility influence consumer attention. Following this, an example of Fiji-related travel recommendations illustrates how repeated exposure and familiarity may contribute to consideration set formation. Finally, this paper discusses how platform engagement and behavioural data feedback loops continuously reinforce algorithmic influence.

2. Recommendation Algorithms and Consumer Decision-Making

Recommendation algorithms have become central to digital consumption because they transform large amounts of behavioural data into personalised information environments. Unlike traditional forms of product discovery, where consumers actively search and compare available alternatives, algorithmic platforms increasingly anticipate users' interests and present selected options before consumers explicitly request them. By analysing user characteristics, previous interactions, and patterns among similar users, recommender systems can predict potential preferences and provide content considered relevant to individual users [1].

The importance of recommendation algorithms, however, extends beyond their ability to improve search efficiency. In digital platforms, consumer behaviours continuously generate data that influence future recommendations. Actions such as clicking, watching, saving, commenting, and searching provide signals about individual interests and preferences. This creates an ongoing relationship between consumers and platforms: users contribute behavioural information through their interactions, while algorithms use this information to reorganise future content exposure. Therefore, recommendation systems are not static mechanisms that simply deliver information; they continuously adapt to changing patterns of consumer behaviour.

Personalisation is one of the most important mechanisms through which recommendation algorithms influence consumer decision-making. By identifying users' interests and predicting potential preferences, algorithms can reduce information overload and narrow down the number of alternatives consumers need to evaluate. For example, a consumer who frequently interacts with travel-related content may receive more recommendations related to destinations, accommodation, and travel experiences. Although these recommendations do not determine the final decision, they influence the initial information environment from which consumers develop preferences.

Recent empirical research suggests that algorithmic recommendations affect consumer decisions by shaping evaluation processes before purchase occurs. Research demonstrates that recommender systems influence purchasing behaviour through changes in consumers' decision-making processes rather than through direct persuasion [4]. Similarly, recommendation systems can change consumer choice outcomes by modifying the presentation and comparison of alternatives [5]. These findings indicate that algorithmic influence often occurs before the final purchase stage, during the earlier process of discovering and evaluating possible choices.

However, personalisation alone cannot fully explain the influence of recommendation algorithms. While personalisation determines which information appears relevant to individual users, algorithms also determine which content becomes visible and receives attention within digital environments. Since

consumers cannot evaluate options they never encounter, visibility becomes a crucial factor in shaping decision-making processes. The following section examines how algorithmic visibility influences consumer attention and contributes to the formation of preferences.

3. Personalization, Algorithmic Visibility and Consumer Attention

While personalisation allows recommendation algorithms to provide users with content that appears relevant to their interests, the broader influence of algorithms lies in their ability to organise visibility within digital environments. On contemporary platforms, consumers are not exposed to all available information equally. Instead, algorithmic systems rank, filter, and prioritise content based on predicted relevance, user behaviour, and engagement patterns. As a result, recommendation algorithms influence not only what information consumers receive but also which information remains outside their immediate awareness.

Bucher argues that algorithmic systems create conditions of unequal visibility by making certain content more accessible while reducing the likelihood that other content will be encountered [2]. In digital consumption environments, visibility is a critical stage of decision-making because consumers cannot evaluate alternatives that they never discover. Therefore, algorithms influence consumer behaviour before the final decision stage by shaping the range of options available for consideration.

This process is particularly important within social media platforms, where consumers increasingly encounter products and experiences through continuously updated recommendation feeds. Unlike traditional consumption environments, where consumers may begin with a clear intention and actively search for information, algorithmic platforms often introduce users to options they had not previously considered. In this sense, recommendation systems do not simply respond to existing preferences; they may also contribute to the formation of new interests by repeatedly presenting specific categories of content.

The relationship between algorithmic visibility and consumer attention can be observed through social media recommendation systems. Research on digital platforms demonstrates that algorithms influence content exposure by determining which messages and creators receive greater visibility [6]. Although this research focuses on digital influencers, the underlying mechanism is also relevant to consumer decision-making. Products, destinations, and lifestyles that receive greater algorithmic visibility have a higher probability of reaching users and shaping their perceptions.

However, algorithmic visibility should not be interpreted as a process of complete consumer manipulation. Algorithms are not purely neutral technical systems; they operate within social and institutional contexts where decisions regarding ranking, relevance, and recommendation are made [3]. The information presented to consumers reflects both user behaviour and platform objectives. Consumers continue to interpret information according to their own experiences, preferences, and circumstances, but these interpretations occur within environments that have already been partially structured by algorithmic systems.

Therefore, the influence of recommendation algorithms emerges through the interaction between technological systems and consumer cognition. By determining which information becomes visible and repeatedly encountered, algorithms shape the conditions under which consumers develop familiarity and evaluate alternatives. The following section examines how repeated exposure transforms algorithmically recommended content into potential consumer decisions.

4. From Repeated Exposure to Consumer Decision-Making: A Fiji Travel Recommendation Example

4.1 Repeated Exposure and Familiarity Formation

Algorithmic visibility does not immediately translate into consumer decisions. Instead, the influence of recommendation systems often develops gradually through repeated exposure. On digital platforms, users frequently encounter similar types of content because recommendation algorithms continuously analyse previous interactions and adjust future suggestions. As a result, certain products, destinations, or lifestyles may appear repeatedly within users' feeds, increasing their familiarity over time.

Repeated exposure is particularly important in experience-based consumption, where consumers often make decisions under uncertainty. Unlike physical products that can be directly evaluated before

purchase, travel experiences are difficult to assess in advance. Consumers therefore rely heavily on available information, visual representations, reviews, and previous impressions when forming preferences. In these situations, repeated algorithmic exposure can reduce uncertainty by making certain options appear more recognisable and easier to evaluate.

The influence of repeated exposure does not mean that consumers automatically develop preferences for every recommended option. Instead, repeated exposure increases the cognitive accessibility of particular choices. When consumers later begin an active decision-making process, previously encountered options are more likely to be remembered and considered. Therefore, recommendation algorithms influence not only what consumers eventually choose, but also which choices become available for evaluation.

4.2 Consideration Set Formation and Algorithmic Influence

Consumer decision-making rarely involves evaluating every possible alternative available in the market. Due to limited attention, time, and cognitive resources, consumers typically develop a smaller group of options, known as a consideration set, before making a final decision. Recommendation algorithms influence this process by affecting which alternatives become visible, familiar, and worthy of consideration.

Previous research suggests that algorithmic recommendations influence consumer choices by shaping the evaluation process before purchase. Recommender systems can affect purchasing outcomes by changing how consumers process and evaluate available information [4]. Furthermore, recommendation systems can modify consumer choice outcomes by altering the presentation and comparison of alternatives [5]. These findings suggest that algorithmic influence occurs before the final purchasing stage, during the process where consumers determine which options deserve further consideration.

This mechanism explains why recommendation algorithms can influence preferences without directly forcing consumers to select specific products or experiences. By increasing the visibility and familiarity of particular options, algorithms affect the structure of consumers' consideration sets and shape the alternatives that are evaluated during decision-making.

4.3 Fiji Travel Recommendation Example

The influence of this process can be illustrated through Fiji-related travel recommendations on digital platforms. Consider a consumer who initially has no specific preference for Fiji and is simply browsing travel-related content. Through interactions with travel videos, destination images, and lifestyle content, the recommendation system identifies a potential interest in tropical holidays and begins presenting similar recommendations.

At the beginning of this process, Fiji represents only one unfamiliar destination among many possible alternatives. However, as the consumer continues engaging with travel-related content, the platform may repeatedly recommend Fiji-related materials, including beach experiences, accommodation suggestions, travel guides, and user-generated reviews. Through continuous exposure, Fiji becomes increasingly visible and familiar compared with destinations that appear less frequently.

When the consumer later begins actively planning a holiday, Fiji may already exist within the consideration set. The algorithm has not forced the consumer to choose Fiji or removed alternative destinations. Instead, it has influenced the decision environment by increasing the probability that Fiji will be noticed, evaluated, and compared with other options.

This example demonstrates that algorithmic influence operates through gradual preference formation rather than direct persuasion. The algorithm's role is not to determine the final choice but to shape the conditions under which choices become available. By organising visibility, attention, and repeated exposure, recommendation systems influence the earlier stages of consumer decision-making.

4.4 Algorithmic Influence and Consumer Agency

The Fiji example also highlights the importance of distinguishing between algorithmic influence and algorithmic control. Consumers continue to make decisions based on personal preferences, financial considerations, previous experiences, and individual goals. Recommendation algorithms do not eliminate consumer agency; instead, they reshape the environment in which consumers exercise that agency.

Research on recommender systems further suggests that recommendation design can influence consumer preferences, particularly for experience-based products where consumers rely heavily on information cues before purchase [7]. This supports the argument that algorithms affect consumer decisions by shaping exposure and evaluation processes.

Therefore, recommendation algorithms should be understood as systems that reorganise consumer decision environments. Their influence comes from determining which options become visible, familiar, and likely to be considered rather than from directly controlling consumer choices.

5. Platform Engagement and Data Feedback Loops

5.1 Behavioural Data and Algorithmic Learning

The influence of recommendation algorithms does not end when consumers make decisions. Instead, consumer interactions with digital platforms generate new behavioural data that continuously reshape future recommendations. Actions such as clicking, watching, saving, commenting, searching, and the amount of time spent engaging with particular content provide platforms with signals about users' interests and preferences. These signals become important inputs for improving recommendation systems and refining future content delivery.

This process creates a dynamic relationship between consumers and platforms. Users are not simply passive recipients of algorithmic recommendations; their behaviours actively contribute to the development of future algorithmic outputs. At the same time, improved recommendations influence the information environments users encounter in the future. Therefore, recommendation algorithms operate through a continuous feedback loop in which consumer behaviour both responds to and shapes algorithmic decisions.

Research on recommender systems suggests that personalised recommendations can strengthen long-term platform engagement by improving user experiences and encouraging continued participation [8]. This indicates that recommendation systems serve not only as tools for improving information retrieval but also as mechanisms through which platforms maintain relationships with consumers.

5.2 Platform Objectives and Recommendation Optimisation

Although recommendation algorithms rely heavily on consumer preferences, their operation is also influenced by platform-level objectives. Digital platforms often optimise recommendation systems according to engagement-related outcomes, including user retention, interaction frequency, and continued platform usage. Therefore, algorithmic recommendations reflect both individual consumer interests and broader platform strategies.

Recent research suggests that algorithmic recommendations can influence consumer exposure by strategically shaping the options presented to users [9]. This does not mean that platforms completely determine consumer decisions. Rather, it indicates that recommendation environments are not entirely neutral. The visibility of certain products, services, or experiences may be affected by the interaction between consumer preferences and platform objectives.

The feedback loop created by algorithmic recommendation helps explain why algorithmic influence can become stronger over time. As platforms collect more behavioural information, they become increasingly capable of predicting user interests and personalising future recommendations. Increased personalisation then encourages further engagement, generating additional data that strengthens the system.

5.3 The Relationship Between Algorithmic Influence and Consumer Agency

However, stronger algorithmic personalisation does not necessarily mean that consumers lose control over their decisions. Although algorithms influence what information becomes available, consumers continue to interpret, evaluate, and respond to recommendations according to their own preferences and circumstances.

The relationship between consumers and algorithms is therefore not one-directional. Platforms influence consumer attention through recommendation systems, while consumer actions continuously provide the data that shapes future algorithmic decisions. This interaction demonstrates that algorithmic

influence is produced through the combination of technological systems, platform strategies, and individual choices.

Understanding this relationship is important because it avoids two extreme interpretations of recommendation algorithms. They should not be viewed either as completely neutral tools that simply provide information or as systems that fully manipulate consumer behaviour. Instead, their influence lies in continuously organising visibility, attention, and opportunities for discovery within digital consumption environments.

6. Discussion

This paper demonstrates that recommendation algorithms influence consumer decision-making through a gradual and indirect process rather than direct behavioural control. By connecting personalisation, algorithmic visibility, repeated exposure, consideration set formation, and feedback loops, this study explains how algorithms shape the environment in which consumers discover and evaluate choices.

The findings contribute to existing research by shifting attention from the technical performance of recommendation systems towards the broader decision-making process. Previous studies have often examined algorithms through dimensions such as prediction accuracy, user engagement, or purchase outcomes. This paper extends these discussions by highlighting the intermediate stages through which algorithms influence decisions, particularly the formation of attention, familiarity, and consideration sets.

At the same time, this paper emphasises that algorithmic influence does not eliminate consumer agency. Consumers remain capable of evaluating alternatives and making independent decisions. However, these decisions occur within digital environments that are partially structured by algorithmic systems.

Therefore, recommendation algorithms should be understood as systems that reorganise decision environments rather than simply systems that predict consumer preferences. Their influence emerges from the interaction between algorithmic design, platform objectives, and consumer behaviour.

7. Conclusion

This paper examined how recommendation algorithms shape consumer decision-making on digital platforms. By addressing the two research questions, this study demonstrates that algorithmic influence occurs through connected mechanisms including personalisation, algorithmic visibility, repeated exposure, consideration set formation, and behavioural feedback loops.

The analysis shows that recommendation algorithms affect consumer decisions by shaping what information becomes visible, familiar, and worthy of consideration before the final decision stage. The Fiji travel recommendation example illustrates how repeated algorithmic exposure can influence preference formation without directly determining consumer choices.

However, algorithmic systems should not be understood as complete forms of consumer control. Instead, they reshape the information environments in which consumers exercise their choices. As digital platforms continue to integrate increasingly advanced AI-driven recommendation technologies, future research should further explore the relationship between algorithmic personalisation, consumer autonomy, and platform governance.

References

- [1] Adomavicius G, Tuzhilin A. *Toward the next generation of recommender systems: A survey of the state-of-the-art and possible extensions*[J]. *IEEE Transactions on Knowledge and Data Engineering*, 2005, 17(6): 734-749.
- [2] Bucher T. *Want to be on the top? Algorithmic power and the threat of invisibility on Facebook*[J]. *New Media & Society*, 2012, 14(7): 1164-1180.
- [3] Gillespie T. *The relevance of algorithms*[J]. *Media technologies: Essays on communication, materiality, and society*, 2014, 167(2014): 167.
- [4] Li S, Grahl J, Hinz O. *How do recommender systems lead to consumer purchases? A causal mediation analysis of a field experiment*[J]. *Information Systems Research*, 2022, 33(4): 1411-1434.

- [5] Mousavi R, Adamopoulos P, Bockstedt J. *The decoy effect and recommendation systems*[J]. *Information Systems Research*, 2023.
- [6] Cotter K. *Playing the visibility game: How digital influencers and algorithms negotiate influence on Instagram*[J]. *New Media & Society*, 2019, 21(4): 895-913.
- [7] Choi Y, Kim J. *Consumer preferences in user- vs. item-based recommender systems for search and experience products*[J]. *Journal of Marketing Management*, 2025.
- [8] Maslowska E, Malthouse E C, Hollebeek L D. *The role of recommender systems in fostering consumers' long-term platform engagement*[J]. *Journal of Service Management*, 2022.
- [9] Chen N, Tsai H T. *Steering via algorithmic recommendations*[J]. *The RAND Journal of Economics*, 2024, 55(4): 501-518.