

Rewards and Cognitive Dissonance: The Impact of Cookie Policies in Information Ecosystems

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Abstract. In the digital age, where users' attention is an increasingly rare commodity, cookies have become an essential tool not only for optimizing online experiences, but also for the psychological manipulation of users. These small data files are used strategically to stimulate the brain's reward system as well as to avoid cognitive dissonance, a phenomenon that occurs when there is a conflict between users' expectations of the reality of their online interactions. By offering a personalized experience and constant rewards, the cookie policy helps to keep users connected in the digital space, preventing them from encountering dilemmas or unpleasant situations that could cause them to reconsider their commitment to the respective platforms.

Keywords: *cookie policy, manipulation, reward system, cognitive dissonance, digital space*

1. Introduction

Cognitive dissonance, a fundamental concept in modern psychology formulated by Leon Festinger, describes the inner tension we feel when our beliefs or values contradict the actions that we undertake¹. In the digital age, this phenomenon takes on new meanings, especially in the context of the cookie policy - those pop-up windows that we constantly encounter in the online environment, intended to inform users about the collection and use of their data. Although cookie policies are essentially technical tools designed to comply with privacy regulations and personalize the online experience, they profoundly influence user decisions and perceptions.

This article proposes an innovative perspective on the cookie policy, presenting it not only as a technological formality, but also as an essential communication mechanism between the user and the platform, which can reduce cognitive dissonance. Instead of causing tension between the desire for privacy and the need for access to information, a well-designed cookie policy can help users make decisions aligned with their values, creating a more harmonious relationship with the digital space.

Reward theory is a crucial framework in understanding the motives behind human behavior, with varied applications in psychology, behavioral economics, and marketing. This theory suggests that people are motivated to act based on expectations of obtaining benefits or rewards, whether material, emotional, or social. In the contemporary digital environment, this concept becomes even more relevant, especially in terms of user interaction with cookie policies.

¹Festinger, Leon. (1957). *A Theory of Cognitive Dissonance*. Stanford University Press.

When users are faced with the requirement to accept cookies, they evaluate not only the privacy implications, but also the potential benefits they can derive from this action. Accepting cookies often facilitates quick access to relevant content, personalized services and optimized online experiences. Thus, reward theory can help explain user choices by highlighting how the motivation to obtain tangible benefits can lead to the reduction of cognitive dissonance. We highlight not only the ways in which cookie policies influence the user experience, but also how they can become a tool to reduce cognitive dissonance and strengthen the relationship of trust between the user and the platform by stimulating the brain's reward system.

2. The cookie policy and the pop-up windows

The cookie policy² is a document that explains to users how a website collects, stores and uses data through "cookies"³ - small files placed on the user's device (computer, tablet, phone) when they access the website. The purpose of cookies is to personalize the browsing experience, to remember the user's preferences and to collect information for traffic analysis and marketing. This data may be used by the site or by third parties to display personalized content, relevant advertisements or to monitor browsing behavior. This is necessary to ensure transparency towards website users⁴, being a mandatory information tool in many states, especially due to privacy regulations such as the European Union's General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) from the USA. These legislative acts require that users be informed about the types of cookies used, their purpose, as well as the consent options they have.

Cookie pop-up windows are notifications that appear automatically when a user accesses a website, with the role of informing and obtaining consent regarding the collection and use of personal data. They offer options to accept, reject or personalize cookies, in accordance with privacy regulations⁵, such as GDPR. Through these windows, users can control how their data is used, and sites comply with legal transparency and data protection requirements.

One of the most important effects of cookies is the ability to personalize content by providing relevant recommendations that contribute to a more pleasant user experience. Psychological dynamics highlight that the impact of familiarity generated by personalization drives loyalty and increases the chances that users will return to platforms, given that they tend to prefer sites that understand their preferences. Moreover, the use of cookies activates the reward system in the user's brain, releasing dopamine during positive interactions. This biological mechanism encourages returning behaviors to personalized sites, underscoring the importance of external stimuli in creating a pleasant experience.

3. The reward system

Reward theory is a fundamental topic in psychology which suggests that behaviors followed by positive or pleasurable outcomes are more likely to be repeated. This idea is based on conditional learning⁶, a concept developed by researchers such as B.F. Skinner, who demonstrated how rewards facilitate learning and habit formation. In digital marketing, reward theory provides a solid foundation for creating stimulating and rewarding user interactions that have a significant impact on consumer behavior.

The working mechanics of the reward theory rest on several essential principles. First, positive rewards are decisive: any pleasant experience that follows a specific behavior increases the likelihood

² Hasan, L., & Abuelrub, E. (2011). *Website usability: A user-centered design approach* in *User Experience in the Era of Big Data* (pp. 99-125). Springer.

³ Shin, D. H. (2013). *User experience in e-commerce: A literature review*. *Journal of Electronic Commerce Research*, 14(1).

⁴ Koh, S. C. L., & Kim, Y. (2020). The impact of cookie alerts on user behavior. *Computers in Human Behavior*, 112, 106434.

⁵ Taddicken, M. (2014). The "privacy paradox" in the context of social media: How personal characteristics affect privacy behavior. *Journal of Media Psychology*, 26(2).

⁶ Skinner, B. F. (1953). *Science and human behavior*. Macmillan.

that a certain behavior will be repeated. For example, a user who receives a personalized discount for a previous purchase will feel more motivated to return to that site. Immediate feedback also plays an important role; the faster the feedback, the more effective the impact of the reward will be. Thus, real-time notifications of discounts or personalized offers help users quickly associate rewards with their actions.

A variety of rewards can also increase user interest and motivation⁷. Their diversity can stimulate curiosity and encourage users to explore more. Some rewards can be unpredictable, which makes them more attractive; users will want to engage in activities where they do not know exactly what reward they will receive. This unpredictability can encourage participation and continued exploration of available ads or offers.

Rewards can be classified into two broad categories: intrinsic rewards and extrinsic rewards. Intrinsic rewards are the internal satisfactions that come from doing an activity. For example, a user might find it enjoyable to browse a site that provides the information they want in an efficient way. On the other hand, extrinsic rewards are external rewards such as discounts, loyalty points or gifts. These types of rewards are the most common in digital marketing because they are easy to measure and quantify. For example, email marketing campaigns that offer a discount code can significantly increase the conversion rate by incentivizing users to complete purchases.

The implementation of reward theory in digital marketing has brought significant improvements. An essential aspect is customer loyalty, where offering attractive rewards contributes to the development of loyalty programs. For example, loyalty point programs reward users for each purchase, which encourages them to return. Modern technology allows personalization of offers based on user behavior and preferences. Cookies, for example, play a key role in this personalization, allowing brands to offer specific rewards based on each user's browsing and purchase history.

Rewards also generate positive emotions that are associated with the brand. A user who receives a surprise reward, such as an unexpected discount, develops a favorable perception of the brand, which helps build a positive long-term relationship. However, implementing reward theory is not without its challenges. As users become more aware of reward strategies, their expectations begin to rise⁸. Offers that were once attractive can become boring if they are not constantly updated.

Additionally, in a competitive information ecosystem where many brands offer similar rewards, it can be difficult to stand out. Finding unique and innovative rewards becomes essential to attract consumers. There are also ethical concerns about the overuse of tracking technologies to provide personalized rewards, which can raise privacy issues. It is crucial that marketers are transparent and respect users' choices about the use of personal data.

4. Cognitive dissonance in the digital environment

Cognitive dissonance⁹ is a central concept in social psychology that is defined by the mental discomfort felt when individuals simultaneously hold contradictory beliefs, values, or behaviors. In the context of the digital environment, users often face cognitive dissonance in relation to cookie policies, essential for efficient website navigation. This tension arises from users' desire for personalization and easy access to information, while being aware of potential risks to their data privacy.

Cognitive dissonance often occurs when users are forced to accept cookies to access online content, creating a tension between the desire to personalize the digital experience and privacy concerns. For example, research shows that the lack of clear information about how cookies are used can cause anxiety and confusion among users. Users may also become skeptical about why sites require their consent for cookies, leading to internal conflicts between the desire to benefit from online services and hesitations about the protection of personal information.

⁷ Deci, E. L., & Ryan, R. M. (2000). *Intrinsic and extrinsic motivations: Classic definitions and new directions*. *Contemporary Educational Psychology*, 25(1).

⁸ Bandura, A. (1977). *Self-Efficacy: Toward a Unifying Theory of Behavioral Change*. *Psychological Review*.

⁹ Festinger, L. (1962). "A theory of cognitive dissonance." *Psychological Review*.

One of the main functions of the cookie policy is to reduce the cognitive dissonance¹⁰ felt by users. In this sense, implementing a transparency policy helps users to be better informed about how their data is collected and used. A clear and accessible policy allows users to adjust their expectations and understand the benefits of accepting cookies. When users are properly informed, they tend to experience a lower level of mental discomfort and ambivalence.

Personalizing the user experience is another significant factor in reducing cognitive dissonance. Cookies allow websites to remember user preferences and provide personalized recommendations, which helps create a more enjoyable experience. A study by Arora and colleagues published in 2020 demonstrated that users who benefit from tailored offers become more likely to justify accepting cookies, perceiving it as an advantageous choice. This suggests that through personalization, cognitive dissonance is reduced, with users feeling that they are actively improving their online experience.

Another important aspect is the influence of social norms. Accepting the cookie policy has become a standard practice on most websites, which can reduce cognitive dissonance. Users tend to conform to the behaviors of those around them, and this phenomenon, known as social pressure, can lead them to accept cookies without expressing doubts. Research suggests that when users see that the vast majority accept cookies, they are more likely to do the same, perceiving this choice as socially justified.

Despite the obvious advantages, the implementation of the cookie policy can face some challenges. The negative perception of privacy is a significant obstacle. Even with transparency policies, some users may consider accepting cookies to be an invasion of their privacy, which can cause considerable cognitive dissonance, especially among those most sensitive to privacy issues¹¹. This underlines the need to build trust between users and digital platforms.

Moreover, the nature of the cookie acceptance process can generate cognitive dissonance. Many users choose to accept cookies without reading the associated terms and conditions, which can lead to feelings of regret or guilt when they learn additional information about the use of their data¹². This aspect suggests that users need more than transparency; it is vital that platforms promote effective education about the implications of accepting cookies.

5. Conclusion

In conclusion, the analysis of the dynamics of the reward theory in the context of the cookie policy highlights the complexity of user interactions with digital environments. We see that users are motivated to accept cookies not only out of necessity, but also to reap the rewards associated with an improved online experience. Personalization of content, quick access to information and adapted services make accepting cookies a rational and advantageous choice.

Thus, we note that an essential component of these policies is their ability to prevent the emergence of cognitive dissonance. By providing clear and transparent information about data usage and corresponding benefits, digital platforms can reduce users' privacy concerns. Thus, an environment is facilitated in which users no longer feel internal conflicts between the desire to access personalized services and the fears related to the use of personal data.

Therefore, reward theory not only explains users' motivations in choosing to accept cookies, but also illustrates the importance of implementing transparent policies. These policies not only optimize user experience, but also help maintain a trusting relationship between users and digital platforms. As technology advances and users become more aware of their privacy rights, it is proving crucial that platforms continue to adapt policies to minimize cognitive dissonance and ensure an effective balance between benefits and data protection. This aspect will allow the development of a sustainable relationship between users and online environments, benefiting both parties involved.

¹⁰ Stone, J., & Cooper, J. (2001). "The interdependence of motivation and cognition: The role of dissonance in behavior change." *Journal of Personality and Social Psychology*.

¹¹ Martin, K. & Nissenbaum, H. (2009). *Measuring Privacy: A Systematic Approach to the Assessment of Privacy Policies*. International Journal of Information Systems for Crisis Response and Management.

¹² Nissenbaum, H. (2011). *A Contextual Approach to Privacy Online*. Journal of Business Ethics.

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