

Serendipity: Chance Encounters in the Marketplace Enhance Consumer Satisfaction

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Abstract

Despite evidence that consumers appreciate freedom of choice, they also enjoy recommendation systems, subscription services, and marketplace encounters that seemingly occur by chance. This article proposes that enjoyment can, in some contexts, be higher than that in contexts involving choice. This occurs as a result of feelings of serendipity that arise when a marketplace encounter is positive, unexpected, and attributed to some degree of chance. A series of studies shows that feelings of serendipity positively influence an array of consumer outcomes, including satisfaction and enjoyment, perceptions of meaningfulness of an experience, likelihood of recommending a company, and likelihood of purchasing additional products from the company. The findings show that strategies based on serendipity are even more effective when consumers perceive that randomness played a role in how an encounter occurred, and not effective when the encounter is negative, the encounter occurs deterministically (i.e., planned by marketers to target consumers), and consumers perceive that they have enough knowledge to make their own choices. Altogether, this research suggests that marketers can influence customer satisfaction by structuring marketplace encounters to appear more serendipitous, as opposed to expected or entirely chosen by the consumer.

Keywords

choice, enjoyment, product recommendations, satisfaction, serendipity, subscription services

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Consider two consumer encounters. In one encounter, a consumer is listening to a music streaming service and a song they love comes across the speakers. In a second encounter, the consumer is surfing TV channels on Friday night and arrives at channel 131 to find that *The Dark Knight*, their favorite movie, is about to begin. These encounters are extremely pleasant when they occur in a consumer's life and may be even more enjoyable than something the consumer personally picks (e.g., choosing a song to listen to or movie to watch). Such occurrences are also increasingly common in the marketplace. For example, subscription product delivery has proliferated in recent years and often involves receiving products (e.g., clothes, wine) periodically without prior knowledge of the items in the shipment. Other occurrences include recommendation systems that make selections for consumers (e.g., songs, videos) and attractions with unstructured experiences that are not previously defined (e.g., seeing works of art in a museum). These encounters may also occur in contexts where the consumer knows what to expect but something unexpected happens, such as a tasting of a consumer's favorite cheese in

the grocery store precisely on the day the consumer decided to go shopping.

It is unclear, however, why such marketplace encounters are so enjoyable and whether marketers may be able to create, influence, and enhance these kinds of encounters. We contend that some encounters that do not involve deliberate choice are enjoyable because the way they happen generates feelings of serendipity. Serendipity in the marketplace is the set of feelings resulting from a product, service, or experience that is positive, unexpected, and attributed to some degree of chance. We posit that rather than being random encounters, marketers may have control over consumers' perceptions of how the encounter

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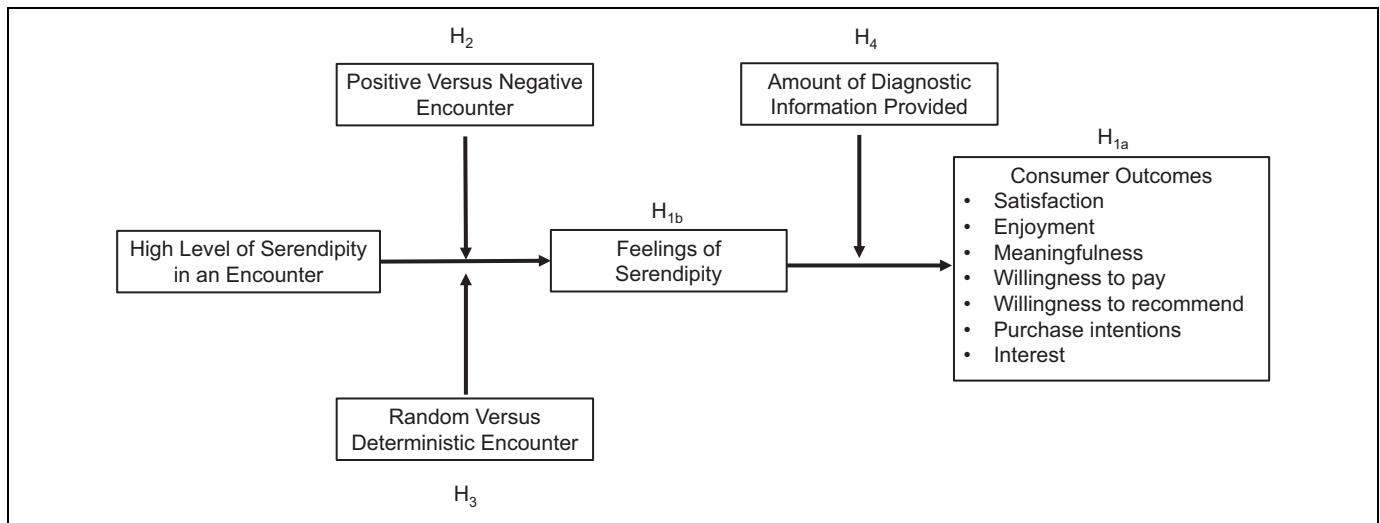


Figure 1. The role of serendipity in the marketplace.

happened (e.g., “I chose it” vs. “There was some chance involved in how it happened”). By altering certain aspects of consumer encounters to generate feelings of serendipity, marketers can influence an array of outcomes, such as satisfaction, enjoyment, meaningfulness of the experience, and willingness to pay, which we collectively call “consumer outcomes” (see Figure 1). A series of studies in multiple domains (online subscription services, works of art, movies, food consumption, and music) tests the idea that feelings of serendipity positively influence such consumer-relevant outcomes.

Drawing from research on consumer reactions to unexpected events (Heilman, Nakamoto, and Rao 2002), findings on how personal choice may not always generate the highest level of satisfaction (Botti and McGill 2006), and qualitative work in the area of recommendation systems (Kotkov, Wang, and Veijalainen 2016), this research contributes to marketing literature and practice in several ways. First, we provide evidence for the characteristics and consequences of serendipity, an underutilized construct in marketing theory and practice. There is research on how surprising consumers may generate positive or negative reactions, but surprise is only one property of encounters that generate feelings of serendipity. By incorporating the role of chance, we can make different recommendations that are not part of the surprise literature, such as how randomness may increase the enjoyment of experiences. Second, this research shows that freedom to choose, which consumers many times desire, does not always lead to the highest consumer satisfaction. This is because choice involves elaboration and the use of limited cognitive resources already taxed by vast amounts of daily information exposure. We show that the absence of choice may actually increase satisfaction with an encounter, and how different properties of such encounters influence satisfaction. Third, this research contributes to practice in several industries. Professionals who work in companies that use subscription services (e.g., Birchbox, Stitch Fix), product recommendations (e.g., Amazon, Spotify), and

unstructured experiences (e.g., museums, amusement parks) can better understand why and when creating serendipitous encounters can bring more benefits than encounters that are expected or entirely chosen by the consumer. Feelings of serendipity are akin to the famous adage of being in the right place at the right time, once popularized by Humphrey Bogart in the classic film *Casablanca*: “Of all the gin joints in all the towns in all the world, she walks into mine.” Our conceptualization and findings will provide marketers with insights on how to build some of this magic into marketplace encounters.

The Pleasures of Serendipity

The eighteenth-century writer Horace Walpole originally coined the term “serendipity” to describe, in a Persian fairy tale, the idea of people “always making discoveries, by accidents and sagacity, of things they were not in quest of” (Walpole 1754, p. 407). Today, serendipity is defined as “finding valuable or agreeable things not sought for” (<https://www.merriam-webster.com/dictionary/serendipity>), looking for something and finding something else that is actually more suitable to one’s needs (Parker 2008), and a positive and unexpected discovery (Herlocker et al. 2004). Despite these definitions, we lack an understanding of serendipity that applies more directly to marketing-relevant phenomena.

Serendipity in the marketplace refers to the set of feelings resulting from an encounter involving a chance finding of a product, service, or experience not directly chosen by the consumer. It happens when a consumer is not looking for anything specific or looking for something and discovers something else (Cunha 2005; McCay-Peet and Toms 2010). Thus, serendipity is an unexpected event that occurs when the consumer is in either a passive state, not trying to discover anything, or an active state, trying to find something of value. As such, we propose that feelings of serendipity in the consumer domain result from an encounter that is (1) positive, (2) unexpected,

and (3) involving some degree of chance (Makri and Blandford 2012; Matt et al. 2014; McCay-Peet and Toms 2010).

The Properties of Serendipity

Unexpectedness is the cognitive process responsible for the feeling of surprise (Reisenzein, Horstmann, Schützwohl 2019), which can be a positive or negative emotional reaction (Faraji-Rad and Pham 2017; Mellers et al. 1997). An unexpected surprise that is negative can enhance negative reactions, but when a surprise is positive (i.e., brings value to the consumer and generates positive emotions), it enhances satisfaction (Lindgreen and Vanhamme 2003; Westbrook and Oliver 1991). For example, consumers experienced greater enjoyment from winning a smaller, unexpected amount of money compared with a larger, but expected, amount of money (Mellers et al. 1997). In addition, surprise incentives (e.g., coupons) are viewed positively and lead to increased spending on unplanned purchases (Heilman, Nakamoto, and Rao 2002; Valenzuela, Strebel, and Mellers 2010).

Although serendipitous events are unexpected, surprise is not the only component of serendipity. For an event to generate feelings of serendipity, it must be attributed to some chance or, in the case of chance that leads to positive experiences, luck. This occurs because one consequence of feeling surprised is the search for attribution (Reisenzein, Horstmann, Schützwohl 2019; Stiensmeir-Pelster, Martini, and Reisenzein 1995). For example, you may be surprised to receive a free cup of coffee when entering your favorite coffee shop but then see a sign saying that they are giving away coffee to their loyalty club patrons. However, if there is no sign, you may attempt to infer what happened by making an attribution to chance (“They are randomly selecting people to receive a free coffee”), and the search for attribution ends (Feather and Simon 1971; Reisenzein, Horstmann, and Schützwohl 2019). In this view, while receiving a cup of coffee with a clear attribution (you are a loyalty club member) is nice, perceiving that you were lucky to be selected may be more satisfying.

Thus, when marketers deliver a product, service, or experience in a way that is positive, unexpected, and involving chance, this will generate congruent feelings. Consumers will feel that the encounter was a good surprise, make attributions to chance, and feel lucky that it happened. We collectively call these “feelings of serendipity.” These feelings, in turn, can influence an array of consumer-relevant outcomes, such as satisfaction with the entire experience with a company. In addition, feelings of serendipity could make such experiences feel more meaningful, as people attach more meaning to events that they perceive to occur by chance or luck. In fact, ascribing meaning to chance events is most prevalent for positive experiences (King et al. 2006; Krantz 1998; Shanahan and Porfeli 2006). For example, a positive event attributed to chance may lead people to think about ways in which things could have happened less positively (Kray et al. 2010), making them think the event was “meant to be,” and that “there is a reason why it occurred.” If feelings of serendipity enhance satisfaction and

meaning, serendipity should influence other outcomes, such as likelihood of recommending a product or service, willingness to pay, and willingness to buy additional products or services from a company.

Serendipity in the Marketplace

Figure 1 presents a summary of the influence of serendipity on consumer-relevant outcomes. Serendipitous events happen without people choosing them or knowledge that they are going to happen. In our previous example, the person chose to go to the coffee shop that day but did not choose to get a free cup of coffee. A consumer chooses to listen to a music streaming service but does not choose the song that plays once they start listening. These examples raise the question of when serendipity occurs and when marketers can take advantage of it.

Serendipity occurs when, at the time of purchase or consumption, an encounter results in the feelings mentioned previously (i.e., a good surprise, luck, attributions to chance). In such contexts, the product, service, or experience may be judged as quite positive (Matt et al. 2014). Consider, for example, subscription services (e.g., Stitch Fix). The consumer chooses the company and whether they want to receive a box with clothes (or other products) chosen by the company on the basis of a profile they fill out. While the company has information about the consumer’s preferences, it is never perfect information, and the consumer is not choosing which products to receive. We propose that a large part of the appeal of such subscription services is that there is an element of surprise and chance (i.e., there is randomness in the process). When the products received are good (“positive”), this generates feelings of serendipity, increasing satisfaction compared with when consumers choose their products.

A similar example is streaming and other recommendation systems, which are the focus of much of the literature on serendipity (Kotkov, Wang, and Veijalainen 2016). These recommendations are based on consumers’ preferences, but the recommendations are unexpected and there is a chance component to them. Thus, when the recommendation is good, the entire experience is more enjoyable because the context generates feelings of serendipity (Leong, Vetere, and Howard 2008; Melo and Carvalhais 2013; Zhang et al. 2012). If a consumer places their favorite songs on a playlist and chooses to play one of them, the listening experience will not generate feelings of serendipity, and enjoyment may not be as high. In support of these predictions, qualitative research on how consumers listen to music suggests that when consumers perceive that they encountered songs and information unexpectedly and by chance, they indicate that their listening experience was better (Celma 2010; Leong, Vetere, and Howard 2008). The implication is that consumers appreciate choosing (Brehm 1972; Sharot, De Martino, and Dolan 2009), but serendipitously encountering a product can be more enjoyable as long as the product brings value to the consumer.

As an additional example, consider experiences such as going to a museum. If a consumer knows beforehand which

work of art (e.g., a painting) they plan to see, this may be enjoyable but not serendipitous. Alternatively, if the museum places beautiful paintings in locations where consumers may find them by surprise (e.g., immediately upon turning a corner), the experience may become serendipitous and even more enjoyable. Finally, consider sampling at a supermarket. While the consumer has chosen to go grocery shopping, and may even expect that there will be some sampling opportunities, coming across a sampling of a favorite varietal of wine can generate feelings of serendipity, which may lead to heightened enjoyment of the wine and a decision to buy it. The relationship illustrated in these examples, depicted with solid lines in Figure 1, leads to our focal hypotheses:

H_{1a}: A marketplace encounter that is positive, is unexpected, and involves some degree of chance improves consumer outcomes compared with an encounter that the consumer directly chooses.

H_{1b}: The effect of a marketplace encounter that is positive, is unexpected, and involves some degree of chance on consumer outcomes is mediated by feelings of serendipity.

Attenuating and Enhancing the Effects of Serendipity

There are different ways in which marketers can attenuate or enhance the effects of serendipity (Figure 1). Marketers can manipulate variables that make the properties of serendipity more or less salient or variables that impact how desirable serendipity is. In terms of the properties of serendipity, the current research manipulates the valence of the encounter (i.e., positive vs. negative; Study 2) and how random consumers perceive the encounter to be (i.e., the encounter was the result of random events vs. planned by the marketer; Study 3). Manipulating valence and perceived randomness enables us to investigate the premise that, for an encounter to be serendipitous, it needs to be a good surprise and attributed to some degree of chance, respectively. In terms of how desirable serendipity is, we manipulate the amount of diagnostic information consumers receive about the product option, which can dampen the serendipity effect (Study 4). We show that sometimes all the properties of serendipity are present, but marketers should be careful not to provide information that can make serendipity undesirable, leading consumers to prefer making their own choice. Altogether, these variables directly address what makes serendipitous encounters so enjoyable—the properties must be present and serendipity must be desirable.

First, the encounter must be positive. While surprise can make an experience more positive due to its unexpected nature (Goldsmith and Amir 2010), it cannot make all experiences more positive (Laran and Tsiras 2013). In fact, a surprise can amplify negative affect when the event does not have utility to the consumer or imposes a cost (Kim and Mattila 2010). This means that negative encounters are not serendipitous, even if the element of surprise is present. Thus, we predict that when an unexpected encounter is positive, it will generate feelings of serendipity and improve consumer outcomes compared with

when the encounter is chosen by the consumer. When an unexpected encounter is negative, it will not generate feelings of serendipity and may diminish consumer outcomes compared with when the consumer chooses the encounter. Formally:

H₂: Feelings of serendipity and improved consumer outcomes occur when an encounter is positive (i.e., brings value to the consumer), but not when it is negative.

Second, influencing the perceived amount of chance involved in an encounter should result in different perceptions of serendipity and outcomes. This can be done in different ways. For example, consider a consumer who receives a song recommendation. In one approach, the song is described as having been randomly selected from a playlist of 100 great songs, and in another situation, the same playlist is described as having 10 songs. Assuming the song is good, the consumer should have more intense feelings of serendipity when it came from the playlist featuring 100 songs, as there was a lower probability that this specific song would have been selected (the consumer feels “luckier”). In a second approach, consumers know that a marketer is responsible for the product, service, or experience (i.e., most marketplace encounters do not occur completely by chance). However, there can still be a surprise and a chance component to the encounter, as the marketer does not have perfect information about the consumer’s preferences. This implies that the more salient it is that the marketer played a role (e.g., “We chose this carefully to match your preferences”), the less attribution to chance there will be. Thus, we predict that the more consumers perceive that an encounter was the result of randomness (vs. selected deterministically), the more feelings of serendipity it will generate, and the more satisfying it will be. Alternatively, if it is salient that an encounter was planned by a marketer to target consumers, the encounter will not generate feelings of serendipity and will not be as satisfying compared with when the presence of the marketer is not salient. We formally hypothesize:

H₃: An increase in the perceived amount of randomness involved in an encounter increases feelings of serendipity and improves consumer outcomes, whereas the perception that an encounter was selected deterministically diminishes feelings of serendipity and consumer outcomes.

Third, sometimes an encounter successfully generates feelings of serendipity, but the effect of having these feelings on satisfaction is moderated by whether serendipity is desirable or not. Consider services that offer recommendations (e.g., music), which can be successful if their recommendations generate feelings of serendipity. This success may depend on consumers’ perception that they have enough knowledge to make their own choices. We predict that when consumers receive a high amount of diagnostic information about a recommendation service and the products it offers, consumers will not desire serendipity and will be more satisfied when they make their own choices. When information is diagnostic, it is directly relevant to choice, as it can inform which option(s) is (are)

superior to other options in a choice set (Feldman and Lynch 1988). When consumers perceive that they have enough relevant information to make an informed choice themselves, feelings of serendipity should not translate into increased satisfaction, as the consumer should believe that they could have made a better choice based on the knowledge they have. This prediction is consistent with research demonstrating that choice can be quite desirable (Brehm 1972; Sharot, De Martino, and Dolan 2009), especially when consumers have enough information to make a satisfying choice (Botti and McGill 2006). Thus,

H₄: Providing a high amount of diagnostic information to consumers makes serendipity less desirable, diminishing consumer outcomes compared with when consumers make their own choices.

Study 1: Serendipity in Online Subscription Services

Study 1 examines real purchase experiences. We identified four subscription service companies where consumers have the option to choose the products themselves or have the products selected for them. This enabled us to understand the role of serendipity using the natural dichotomy that occurs in subscription services. To do so, we asked participants to describe their experiences with the companies and indicate their satisfaction with the products they purchased, meaningfulness of the consumption experience, willingness to recommend the service, and willingness to extend the subscription. We also measured feelings of serendipity. Consistent with H_{1a} and H_{1b}, we expected that participants who had the products selected for them (vs. chose the products themselves) would be more satisfied with the products and that feelings of serendipity would drive this effect.

Method

Participants and design. We recruited 829 participants from Amazon's Mechanical Turk (MTurk) and paid them a small monetary compensation. After we eliminated 18 outliers on the basis of the overall time spent responding to the survey questions (+3 SDs from the mean; Meade and Craig 2012), the final sample size was 811 (43.3% men; age range: 18–71 years, $M = 34.90$ years, $SD = 9.96$ years). We used the same exclusion criterion for all studies but also report the main results without employing exclusions in the Web Appendix. The results of all studies are virtually unchanged without excluding participants. This study had a 2 (condition: personal choice vs. serendipity) \times 4 (company replicate) between-subjects design.

Procedure. Participants were told that the survey was about their consumption experiences from specific companies. Participation in the study was contingent on whether the participant indicated that over the last month they had an

experience with one of the companies we selected for the study (Birchbox [www.birchbox.com], Stitch Fix [www.stitchfix.com], The Tie Bar [www.thetiebar.com], and FabFitFun [www.fabfitfun.com]). Participants were randomly assigned to one of two conditions. Participants in the serendipity condition were told, "Please examine the companies listed below and indicate a company that recently (within the past month) selected products for you and sent them to you as a box you received in the mail." Participants in the personal choice condition were told, "Please examine the companies listed below and indicate a company where you recently (within the past month) selected products from and received your purchase in the mail." In both conditions, if a participant indicated they had not received products from any of the companies listed, they were redirected out of the survey. We programmed the survey with fixed quotas per condition per company used. This enabled us to collect a similar number of participants per condition per company. Once we achieved a certain number of participants for one company (e.g., 200 Birchbox participants with 100 in the serendipity and 100 in the personal choice condition), the survey automatically hid Birchbox from the company selection list.

After indicating a company, participants were told that we were interested in how people process moments of their life and that we would like to know about the recent consumption experience in more detail: "Please think about the time when you recently received a package from [company name was inserted here]. Take a minute to remember what it felt like to receive the products and then describe the products and how you felt when you opened the box." After this writing task, participants were asked, "How satisfied are you with the products you received?" (1 = "not at all satisfied," and 7 = "very satisfied"). Participants also responded to four items measuring feelings of serendipity: "I feel that the products I received from the company were a good surprise," "I feel lucky to have come across these products," "I feel that these products were an unexpected discovery," and "I feel that there was some element of chance involved in having received these exact products" (1 = "strongly disagree," and 7 = "strongly agree"). We combined the items to form a serendipity index ($\alpha = .83$). Participants also responded to questions about the meaningfulness of the experience: "The experience with the products I received was meaningful," "The experience with the products was more meaningful than regular consumption experiences," "I felt that the fact that I got these products was "meant to be," and "These products are meaningful to me" (1 = "strongly disagree," and 7 = "strongly agree"). We combined the items to form a meaningfulness index ($\alpha = .91$). We also asked, "How likely are you to purchase an additional 6-month subscription from [company name]?", and "How likely are you to recommend [company name] subscription service to a friend?" (1 = "not likely at all," and 7 = "very likely").

Participants then responded to two measures related to expectations: "How high were your expectations about the products before you got them?" (1 = "very low," and 7 = "very high") and "How satisfied did you expect to be with

the products before you got them?" (1 = "not at all," and 7 = "very satisfied"). We combined these items to form an expectation index ($r = .63$). This measure allowed us to rule out the alternative explanation that serendipity leads to positive consumer outcomes due to higher expectations when consumers order their own products. We also measured a series of control items designed to check for the robustness of the effects and test the influence of alternative factors on the results. The items measured product cost, product type, perceived quality, number of products, shipping period, time from the purchase, general attitudes toward the company, and satisfaction with the purchase process. The Web Appendix presents the complete procedure and materials of this (Web Appendix A) and all subsequent studies.

Results

Satisfaction. A 2 (condition) \times 4 (company) analysis of variance (ANOVA) revealed a main effect of condition, such that participants reported greater satisfaction in the serendipity ($M = 6.01$, $SD = 1.10$) than in the personal choice condition ($M = 5.55$, $SD = 1.50$; $F(1, 803) = 25.58$, $p < .001$). There was no interaction between condition and the company replicates ($F(3, 803) = .12$, $p = .946$), and the effect of condition was significant for each company. There was a main effect of the company replicate ($F(3, 803) = 3.55$, $p = .014$). Because this main effect does not change the interpretation of the results, we report additional details, along with the results for each company, in Web Appendix A. In all studies reported in the main text, there were no interactions with the replicates we used (different companies, paintings, videos, and songs), and therefore we collapsed across replicates for all analyses. We present the analysis of replicates of each study in the Web Appendix. We also tested whether the effect would hold when we included each control variable we measured in the analysis for each outcome. None of the covariates changed the results, which indicates that they cannot explain the influence of condition on satisfaction (see Web Appendix A).

Willingness to recommend. A 2 (condition) \times 4 (company) ANOVA revealed a main effect of condition, such that participants reported higher willingness to recommend in the serendipity condition ($M = 5.88$, $SD = 1.29$) than in the personal choice condition ($M = 5.25$, $SD = 1.73$; $F(1, 803) = 34.30$, $p < .001$).

Willingness to extend the subscription. A 2 (condition) \times 4 (company) ANOVA revealed a main effect of condition, such that participants reported higher willingness to extend the subscription in the serendipity condition ($M = 5.45$, $SD = 1.60$) than in the personal choice condition ($M = 4.83$, $SD = 1.89$; $F(1, 803) = 25.82$, $p < .001$).

Meaningfulness. A 2 (condition) \times 4 (company) ANOVA revealed a main effect of condition, such that participants reported higher meaningfulness in the serendipity condition

($M = 5.12$, $SD = 1.34$) than in the personal choice condition ($M = 4.72$, $SD = 1.48$; $F(1, 803) = 16.48$, $p < .001$).¹

Mediation by feelings of serendipity. A 2 (condition) \times 4 (company) ANOVA revealed a main effect of condition, such that participants reported greater feelings of serendipity in the serendipity condition ($M = 5.50$, $SD = 1.02$) than in the personal choice condition ($M = 5.07$, $SD = 1.36$; $F(1, 803) = 25.89$, $p < .001$). We conducted bootstrapping mediation analyses (PROCESS Model 4; Hayes 2018) using condition (serendipity vs. personal choice) as the independent variable and serendipity as the mediator for each of the outcomes.

The indirect effect of serendipity was significant for satisfaction ($\beta = .32$, $SE = .07$, 95% confidence interval [CI]: [.19, .47]), meaningfulness ($\beta = .35$, $SE = .07$, 95% CI: [.21, .50]), willingness to recommend ($\beta = .37$, $SE = .08$, 95% CI: [.22, .52]), and willingness to extend the subscription ($\beta = .36$, $SE = .07$, 95% CI: [.22, .50]).

Expectations. A 2 (condition) \times 4 (company replicate) ANOVA did not reveal main effects of condition ($M_{\text{serendipity}} = 5.34$, $SD = 1.10$; $M_{\text{personalchoice}} = 5.27$, $SD = 1.05$; $F(1, 803) = .91$, $p = .340$), showing that the findings cannot be explained by consumers creating higher expectations when they choose the products they will receive.

Discussion

Using retrospective reports from real purchase experiences, Study 1 found that having products sent by a subscription service without knowing what the specific products are leads to more positive consumer responses than personally choosing products. This effect, which supports H_{1a} and H_{1b} , was due to feelings of serendipity, and not to an increase in expectations about the products. Further, the effect held while controlling for an array of factors that may influence consumer responses (i.e., product cost, product type, perceived quality, number of products, shipping period, time from the purchase, general attitudes toward the company, and satisfaction with the purchase process), meaning that the effect of serendipity is robust and goes beyond any possible effect of such factors.

Study 2: The Role of Experience Valence

We have theorized that the experience needs to be positive for serendipity to occur. In Study 2, we examine the role of valence in the context of seeing a painting in a museum. Participants either chose which painting they wanted to see or had a painting randomly chosen for them. We also had a baseline condition in which participants simply saw a painting. The baseline

¹ As indicated in the Web Appendix procedures, we also measured meaningfulness in Studies 2 and 3 and Supplemental Studies C-1 and D-1. This measure follows the same pattern as the main dependent variables and was more central in a previous version of this paper. For this reason, the results for the subsequent studies are discussed only in the Web Appendix.

condition allowed us to determine whether the focal effect occurs because of a positive effect in the serendipity condition or a negative effect in the choice condition. Consistent with H_2 , we predicted that having a painting randomly chosen would increase enjoyment relative to a baseline and a personal choice condition when the painting was attractive (i.e., positive valence), but not when it was unattractive (i.e., negative valence). This context is relevant to practice, as serendipity can also occur when consumers have unstructured experiences such as those that occur in a museum or an amusement park. Thus, findings in this context may help managers configure these experiences in a way that generates feelings of serendipity.

Method

Participants and design. We recruited 462 participants from MTurk and paid them a small monetary compensation. After we eliminated 15 outliers on the basis of the time spent responding to the survey questions (see criterion in Study 1), the final sample size was 447 (46% men; age range: 18–89 years, $M = 39.33$ years, $SD = 13.69$ years). This study had a 3 (condition: baseline, personal choice, serendipity) \times 2 (valence: positive vs. negative) \times 2 (painting replicate) between-subjects design.

Procedure. Participants were told that we were interested in how people respond in different situations. Participants in the personal choice condition were asked to “Imagine you enter an art gallery. Two of the paintings the gallery features appear below.” Participants then saw the titles of two paintings by Gerald Chodak: *Moving Around* and *On the Border*. The titles were the same in the positive and negative valence condition, but the paintings were either attractive or unattractive, depending on the condition. The order of presentation of the titles on the screen was counterbalanced. Participants were then asked to “select one of these two paintings to view” and clicked on a continue button to proceed. Once participants proceeded to the next page, they saw the painting they chose (for all the paintings as well as the results of a pretest showing that the positive paintings were indeed perceived as more positive, see Web Appendix B). Participants in the serendipity condition went through the same procedure, but instead of being asked to select one of the paintings when they saw the information about the paintings, they were simply asked to click on a continue button to proceed. Once they proceeded, they were told, “Imagine that you walk down a hallway in the art gallery and turn a corner. Just as you turn the corner, you happen to find this painting on the wall,” and one of two paintings, selected randomly, was presented. Participants in the baseline condition were told to “Imagine you enter an art gallery. You will see and rate a painting on the next page.” Once participants proceeded to the next page, one of the two paintings was randomly presented to them.

After viewing the painting, participants were asked, “How much did you enjoy the painting?” (0 = “I hated it,” and 100 = “I loved it”). Participants also responded to questions about their feelings of serendipity ($\alpha = .78$): “Getting to see the

painting I just saw was a good surprise,” “I came across this painting by luck,” and “This painting was an unexpected discovery” (1 = “strongly disagree,” and 7 = “strongly agree”).

We also measured alternative explanations. Participants reported their attachment to the alternative option: “To what extent did you feel attached to the other option?” (1 = “not at all attached,” and 7 = “very much attached”). This question examined whether participants enjoyed the chosen option less in the positive valence condition because they were attached to the option they did not choose (Carmon, Wertenbroch, and Zeelenberg 2003). Participants also answered a question about regret: “To what extent did you feel regretful about the painting you saw?” (1 = “not at all regretful,” and 7 = “very much regretful”). Moreover, they indicated “How much did you scrutinize the painting?” (1 = “not at all,” and 7 = “very much”), allowing us to verify whether participants scrutinized the paintings to different degrees across conditions. Participants then answered questions about stress and frustration: “How stressed were you with the painting selection process?” (1 = “not at all stressful,” and 7 = “very much stressful”), and “How frustrated were you with the painting selection process?” (1 = “not at all frustrated,” and 7 = “very much frustrated”), allowing us to verify whether choosing versus not choosing, and seeing a negative versus a positive painting, generated negative feelings that could explain the results.

Results

Enjoyment. A 3 (condition) \times 2 (valence) ANOVA revealed a main effect of valence ($F(1, 441) = 32.21, p < .001$), such that participants enjoyed the positive paintings ($M = 63.42, SD = 26.12$) more than the negative paintings ($M = 47.68, SD = 33.16$). There was no main effect of condition ($F(2, 441) = .209, p = .812$). The interaction was significant ($F(2, 441) = 3.92, p = .021$; see Figure 2). When participants saw a positive painting, there was a marginally significant effect of condition ($F(2, 441) = 2.83, p = .060$). Participants reported higher enjoyment in the serendipity condition ($M = 70.08, SD = 23.76$) than in the personal choice ($M = 59.97, SD = 24.49; F(1, 441) = 4.32, p = .038$) and baseline ($M = 60.17, SD = 28.85; F(1, 441) = 4.17, p = .042$) conditions. There was no difference between the baseline and the personal choice conditions ($F < 1$). When participants saw a negative painting, there was no effect of condition ($F(2, 441) = 1.35, p = .261$). We did find that enjoyment was lower in the serendipity condition ($M = 42.88, SD = 32.22$) than in the baseline condition ($M = 50.90, SD = 31.36; F(1, 441) = 2.59, p = .108$). While this difference is not statistically significant, the pattern of results suggests that serendipity can be potentially harmful for negative experiences. None of the results for the measured alternative explanations could explain the effects on enjoyment (for detailed analyses, see Web Appendix B).

Mediation by feelings of serendipity. A 3 (condition) \times 2 (valence) ANOVA revealed an effect of valence ($F(1, 441) = 6.51,$

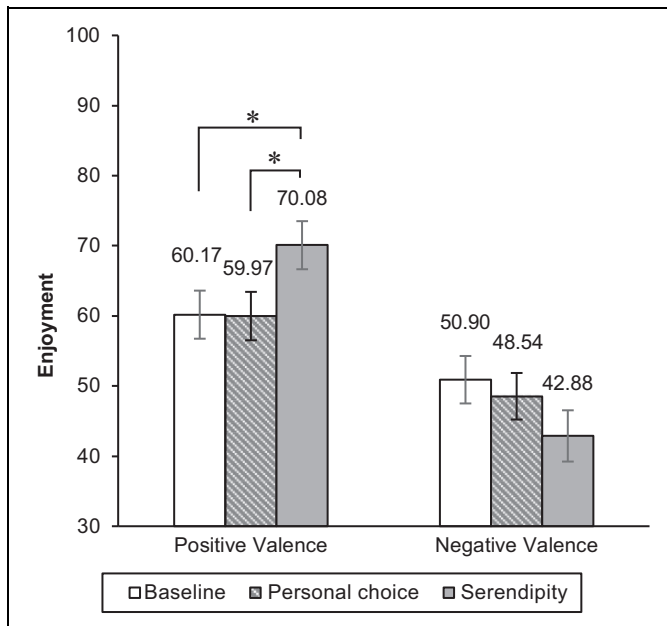


Figure 2. Study 2 results.

* $p < .05$.

Notes: Error bars = ± 1 SEs. Unbracketed comparisons are not significantly different from each other.

$p = .011$), such that participants reported greater feelings of serendipity when the painting was positive ($M = 4.53$, $SD = 1.41$) than when it was negative ($M = 4.17$, $SD = 1.55$). There was also an effect of condition ($F(2, 441) = 5.30$, $p = .005$), such that serendipity was higher in the serendipity condition ($M = 4.65$, $SD = 1.37$) than in the baseline condition ($M = 4.07$, $SD = 1.54$; $F(1, 441) = 10.60$, $p = .001$). We observed no difference between the serendipity and personal choice ($M = 4.34$, $SD = 1.51$) conditions ($F(1, 441) = 2.69$, $p = .102$). In addition, serendipity was marginally higher in the personal choice than in the baseline condition ($F(1, 441) = 2.75$, $p = .098$). These effects were qualified by a marginally significant interaction ($F(2, 441) = 2.39$, $p = .093$). When participants saw a positive painting, there was an effect of condition ($F(2, 441) = 7.19$, $p = .001$). Serendipity was higher in the serendipity condition ($M = 5.02$, $SD = 1.33$) than in the personal choice ($M = 4.42$, $SD = 1.29$; $F(1, 441) = 6.31$, $p = .012$) and baseline ($M = 4.13$, $SD = 1.48$; $F(1, 441) = 13.80$, $p < .001$) conditions, which did not differ from each other ($F(1, 441) = 1.42$, $p = .235$). When participants saw a negative painting, there was no effect of condition ($F < 1$).

We conducted a bootstrapping analysis for moderated mediation using the three conditions (baseline, personal choice, and serendipity) as multicategorical independent variables, valence as the moderator, feelings of serendipity as the mediator, and enjoyment as the dependent variable (Hayes 2018; PROCESS Model 8). When participants saw a positive painting, the pathway to enjoyment through feelings of serendipity was significant when comparing the serendipity condition with the personal choice ($\beta = 8.85$, $SE = 3.06$, 95% CI: [2.77, 14.87]) and baseline ($\beta = 13.05$, $SE = 3.36$, 95% CI: [6.46, 19.71])

conditions. However, when participants saw a negative painting, the pathway to enjoyment through feelings of serendipity was not significant when comparing serendipity with both the personal choice ($\beta = .62$, $SE = 3.62$, 95% CI: [-7.77, 6.63]) and baseline ($\beta = 3.35$, $SE = 3.56$, 95% CI: [-3.60, 10.47]) conditions.

Discussion

Study 2 replicates the positive effect of serendipity, showing that the effect is evident not only in online subscription contexts but also in experiences such as those that occur when consumers visit a museum (i.e., art consumption). Importantly, this effect only happens when the experience is positive, which supports H_2 . The effect was due to feelings of serendipity, and it could not be explained by feelings of attachment to the alternative option or negative feelings during the painting selection process.

Study 3: Degree of Randomness in Recommendation Systems

Study 3 investigates the role of attributions to chance in determining feelings of serendipity and its outcomes (H_3). We propose that when it is salient that a marketer carefully planned a product encounter, there will not be an attribution to chance, and feelings of serendipity will not arise. To test this proposition, we simulated a movie trailer recommendation platform (“Movie Trailer Zone”) that ostensibly learned about a consumer’s movie preferences to build a profile. Once this profile was built, the platform recommended a movie trailer fitting the consumer’s preferences, helping them decide which movie to watch. It was important to investigate serendipity in this context, as recommendation services depend heavily on how satisfied consumers are with products that are chosen for them.

We designed the conditions to generate a high versus low attribution to chance by manipulating the degree of randomness in the (1) initial movie selection, by varying whether the movie was selected from a pool of 100 versus 10 curated movie trailers, respectively, and (2) final movie selection, by varying whether the movie selection was described as randomly drawn from the movie pool versus carefully selected by a marketer out of the movie pool, respectively. We predicted that when the final movie selection was a random process, an increased amount of randomness (making a selection from 100 vs. 10 options) would increase feelings of serendipity and enjoyment. Alternatively, when the final movie selection was described as being made by a marketer, there would be less attribution to chance (i.e., the selection would be deemed deterministic), which would attenuate feelings of serendipity and enjoyment.

Method

Participants and design. We recruited 400 participants from MTurk and paid them a small monetary compensation. After we eliminated 11 outliers on the basis of the criterion outlined

in Study 1, the final sample size was 389 (59.6% men; age range: 18–78 years, $M = 38.11$ years, $SD = 11.56$ years). This study had a 2 (degree of randomness in the initial selection: high vs. low) \times 2 (degree of randomness in the final selection: high vs. low) \times 5 (movie trailer replicate) between-subjects design. Participants did not make a personal choice in any of the conditions.

Procedure. Participants were told that we were interested in consumers' responses to a recently launched platform ("Movie Trailer Zone") that allows members to receive curated movie trailer recommendations, and that they would perform a task that resembled how the platform was used. The procedure was designed to mimic common user experiences on streaming platforms such as Hulu or Netflix. Participants initially saw a short description of the platform, asking them to create an account. To increase immersion, we asked participants to provide a username for their profile and proceed to the profile building task. Once participants proceeded, we showed the username they had chosen and a list with 50 movie posters, asking them to choose 5 movies they liked. We indicated that this would help us (i.e., the platform) find trailers for the movies we thought they might like. As in Hulu or Netflix, participants could choose more than 5 movies if they wanted to. Once participants clicked next, they saw a loading spinner icon so that they would think there was a platform building a customized profile in the background. Participants were told that we were examining their preferences in the background, and that this was a necessary step to make a movie trailer recommendation. We asked them a few filler questions and, once they finished, they saw another loading spinner icon with a "Preparing your recommendation..." message. The page advanced after ten seconds, and the screen showed a recommendation. At this point, we administered different manipulations.

Participants read that, based on their profile, we (i.e., the platform) had curated a selection of movie trailers matching their preferences and that we selected 1 movie trailer out of this curated selection of 100 (randomness in the initial selection: high) or 10 (randomness in the initial selection: low) movie trailers. Here, we also manipulated the perceived degree of randomness in the final selection. Participants in the "high degree of randomness in the final selection" condition read, "We have examined your preferences with the help of our system and have randomly selected one movie trailer that you may enjoy." Participants in the "low degree of randomness in the final selection" condition read, "We have examined your preferences with the help of our system and have carefully selected one movie trailer that you may enjoy." Thus, it was less likely that participants would make attributions to chance in the latter condition, as the instructions made it salient that a marketer planned the experience to target them (i.e., the final selection was deterministic). In addition to the recommendation message, participants saw 60 seconds of the selected movie trailer. Participants saw one of five randomly selected trailers (the movies were *Chronicle*, *Last Stand*, *Lawless*, *Priceless*, and *Wildlife*), which we used to ensure that the effect

was robust across different content. We used these movies on the basis of a pretest that showed a similar baseline level of enjoyment across them (see Web Appendix C).

After viewing the movie trailer, we asked, "How much did you enjoy the movie trailer?" (0 = "I hated it," and 100 = "I loved it"). We also asked participants whether they wanted to sign up to receive more information about the movie trailer recommendation platform (yes/no; if yes, they had to provide an email address). To ensure that we could assess actual interest in the platform, we used an online email validation tool to clean invalid or nonexistent email addresses. Thus, we had two indicators of interest: answering yes vs. no, and the presence (vs. not) of a valid email.

Participants also responded to items assessing feelings of serendipity ($\alpha = .79$): "Getting to watch this movie trailer was a good surprise," "The movie trailer was an unexpected discovery," "I came across this movie trailer by luck," and "Based on how the service works, there was a low chance that I would be watching the specific movie trailer that was selected for me." As a manipulation check, we measured "The movie trailer was selected through a random process" (1 = "strongly disagree," and 7 = "strongly agree"). Finally, we measured the following alternative explanations: regret, stress, frustration, and scrutinizing.

Results

Manipulation check. A 2 (initial selection randomness) \times 2 (final selection randomness) ANOVA revealed a main effect of final selection randomness ($F(1, 385) = 32.51; p < .001$), such that participants perceived the movie selection process as more random when the movie was randomly ($M = 4.51$, $SD = 1.85$) rather than deterministically ($M = 3.42$, $SD = 1.98$) selected. With regard to randomness in the initial selection, there was no main effect ($F < 1$). This was expected, given that there should be no effect of initial selection randomness within the low-final-selection-randomness condition ($F < 1$). Thus, the key contrast was the effect of initial selection randomness within the high-final-selection-randomness condition. In this condition, participants perceived the selection process as marginally more random when the degree of randomness in the initial selection was high ($M = 4.77$, $SD = 1.71$) than when it was low ($M = 4.28$, $SD = 1.94$; $F(1, 385) = 3.40, p = .066$).

Enjoyment. A 2 (initial selection randomness) \times 2 (final selection randomness) ANOVA on enjoyment revealed a main effect of randomness in the final selection ($F(1, 385) = 40.08, p < .001$), such that enjoyment was higher when the movie was randomly ($M = 73.45$, $SD = 22.10$) rather than deterministically ($M = 56.63$, $SD = 30.76$) selected. There was no main effect of randomness in the initial selection ($F(1, 385) = 2.50, p = .114$). The interaction was significant ($F(1, 385) = 4.05, p = .045$; see Figure 3). When there was a high degree of randomness in the final selection, enjoyment was greater in the high- ($M = 78.41$, $SD = 19.28$) than in the

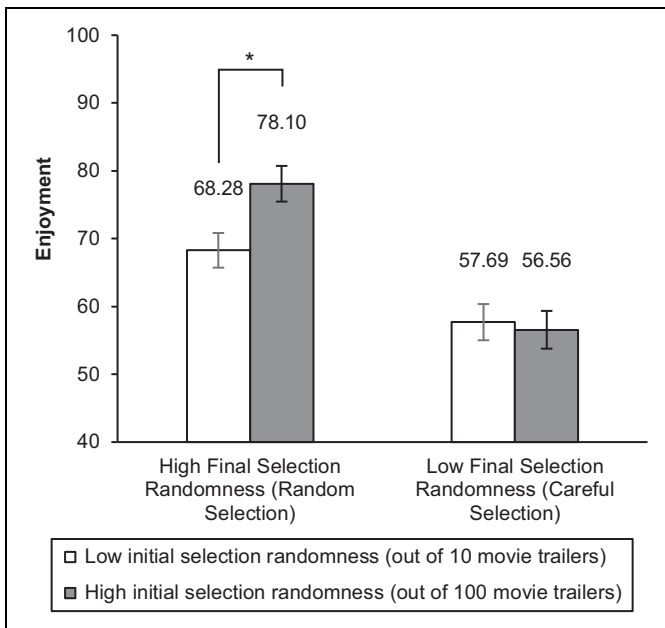


Figure 3. Study 3 results.

* $p < .01$.

Notes: Error bars = ± 1 SEs. Unbracketed comparisons are not significantly different from each other.

low- ($M = 68.77$, $SD = 23.61$; $F(1, 385) = 6.80$, $p = .009$) randomness-in-the-initial-selection condition. When there was a low degree of randomness in the final selection, there was no difference between the high- ($M = 56.03$, $SD = 31.61$) and low- ($M = 57.19$, $SD = 30.11$) randomness-in-the-initial-selection conditions ($F < 1$). None of the results for the measured alternative explanations could explain the pattern of results on enjoyment and the following dependent variables (for detailed analyses, see Web Appendix C).

Interest in the platform (yes vs. no). A 2 (initial selection randomness) \times 2 (final selection randomness) logistic regression revealed a significant interaction between initial and final selection randomness ($\beta = 1.28$, $Wald = 5.13$, $p = .024$), such that participants in the high-randomness-in-the-final-selection condition were more likely to provide their email for signup when randomness in initial selection was high ($P = 34.3\%$) than when it was low ($P = 15.2\%$; $Wald = 10.05$, $p = .002$). For participants in the low-randomness-in-the-final-selection condition, there was no difference between the high- ($P = 11.2\%$) and low- (vs. $P = 13.5\%$; $Wald = .23$, $p = .64$) initial-randomness conditions.

Interest in the platform (presence of valid email). While a 2 (initial selection randomness) \times 2 (final selection randomness) logistic regression did not reveal a significant interaction between initial and final selection randomness ($\beta = 1.05$, $Wald = 2.59$, $p = .108$), the results were consistent with our predictions. Participants in the high-randomness-in-the-final-selection condition were more likely to provide their email for signup when randomness in initial selection was high ($P = 21.2\%$) than

when it was low ($P = 11.4\%$; $Wald = 3.60$, $p = .058$). For participants in the low-randomness-in-the-final-selection condition, there was no difference between the high- ($P = 7.9\%$) and low- (vs. $P = 10.4\%$; $Wald = .36$, $p = .548$) initial-randomness conditions.

Mediation by feelings of serendipity. A 2 (initial selection randomness) \times 2 (final selection randomness) ANOVA revealed a main effect of randomness in the final selection ($F(1, 385) = 64.90$, $p < .001$), such that participants reported greater feelings of serendipity when the movie was randomly ($M = 4.99$, $SD = 1.14$) rather than deterministically ($M = 3.89$, $SD = 1.58$) selected. There was also an effect of degree of randomness in the initial selection ($F(1, 385) = 4.75$, $p = .030$), such that participants reported greater feelings of serendipity when the movie trailer was selected out of a pool of 100 movies ($M = 4.63$, $SD = 1.53$) than when it was selected out of a pool of 10 movies ($M = 4.31$, $SD = 1.39$). The interaction was significant ($F(1, 385) = 4.74$, $p = .030$). When there was a high degree of randomness in the final selection, participants reported greater feelings of serendipity in the high- ($M = 5.30$, $SD = 1.09$) than in the low- ($M = 4.70$, $SD = 1.11$; $F(1, 385) = 9.98$, $p = .002$) randomness-in-the-initial-selection condition. When there was a low degree of randomness in the final selection, there was no difference between the high- ($M = 3.89$, $SD = 1.62$) and low- ($M = 3.89$, $SD = 1.55$) randomness-in-the-initial-selection conditions ($F < 1$).

We conducted a bootstrapping moderated mediation analysis using the degree of randomness in the initial selection as the independent variable, degree of randomness in the final selection as the moderator, and serendipity as the mediator for each of the outcomes we measured (PROCESS Model 8; Hayes 2018). For the enjoyment measure, the index of moderated mediation was significant (index = 8.23; 95% CI: [.69, 16.08]). When there was a high degree of randomness in the final selection, the pathway to enjoyment through feelings of serendipity was significant ($\beta = 8.23$, $SE = 2.17$, 95% CI: [4.07, 12.57]). When there was a low degree of randomness in the final selection, the pathway to enjoyment through feelings of serendipity was not significant ($\beta = .00$, $SE = 3.23$, 95% CI: [-6.34, 6.33]). A similar pattern emerged for both measures of interest in the platform (see Web Appendix C).

Discussion

Study 3 supports H_3 and makes important contributions to the understanding of serendipity. First, feelings of serendipity only occur when the product encounter does not involve highly deterministic components. When it is salient to the consumer that the marketer controlled the ultimate selection of the experience, the experience cannot be attributed to chance, making it less enjoyable. This means that as long as the presence of the marketer (or other nonrandom component) is not made salient, consumers may attribute the selection to chance, increasing serendipity. In addition, increasing the perceived amount of

randomness involved in the initial selection of a product experience had a positive effect, which provides theoretical insight about what makes an experience serendipitous and offers marketers another tool to increase serendipity, enjoyment, and interest. To provide further theoretical and practical insight, Web Appendix C–1 presents an additional study examining the role of chance in encounters involving serendipity in the food domain.

Study 4: The Role of Information

Study 4 examined information as a moderator of the effect of serendipity on consumer satisfaction. We predicted that feelings of serendipity would not translate to higher satisfaction when consumers are presented with enough diagnostic information that makes them perceive they have the knowledge to make their own choices (H_4). To test this prediction, we investigated the context of a recommendation service, similar to Study 2, but this time used an existing company that provides a more functional service. We introduced consumers to a service called Brain.fm, which features functional music that can enhance focus. Functional music is used for many specific purposes, including concentration, relaxation, and meditation. We presented consumers with information about what improves a song's ability to increase concentration. In one condition, this information was nondiagnostic to whether a song is functionally effective, whereas in the other condition it was diagnostic. In the nondiagnostic information condition, consumers should be more satisfied with a song when the encounter occurred serendipitously than when they made their own choice, and feelings of serendipity should predict satisfaction. Alternatively, in the diagnostic information condition, they should be more satisfied with a song when they made their own choice than when the encounter occurred serendipitously. In this condition, even when feelings of serendipity are high, this should not translate to satisfaction, and satisfaction should be driven by consumers' perceived knowledge to make their own decisions in the product category.

Method

Participants and design. We recruited 400 participants from MTurk and paid them a small monetary compensation. After we eliminated 7 outliers on the basis of the criterion outlined in Study 1, the final sample size was 393 (55.2% men; 19–79 years, $M = 40.66$, $SD = 13.56$). This study had a 2 (condition: personal choice vs. serendipity) \times 2 (information: nondiagnostic vs. diagnostic) \times 5 (song replicate) between-subjects design.

Procedure. Participants were told that they would complete a study about Brain.fm, a functional music platform backed by scientific research to help listeners focus and concentrate. Then, participants read a section titled "What is functional music, anyway?" and were informed that Brain.fm develops music to improve concentration. Participants were also told

that functional music involves tempo, pitch, neural phase-locking value, induced brain wave, three-dimensional externalized sound, and brain modulation rate. We included this information so participants could understand whether the information they were about to receive was diagnostic or not.

In the nondiagnostic information condition, participants read about three attributes of functional music that were not relevant to the superiority of one song over others (e.g., "initial composition—humans compose the musical content"). In the diagnostic information condition, participants read about three attributes that were relevant to the superiority of one song over others (e.g., "neural phase-locking value—refers to the extent to which populations of neurons engage in various kinds of coordinated activity") and saw the range of values that would make a song highly functional. Key to the manipulation, all participants then saw the title, neural phase-locking value, induced brain wave, and brain modulation rate of five songs, the latter three pieces of information being the three attributes participants in the diagnostic condition had just learned about. Thus, each song had three attributes, and participants in the diagnostic (nondiagnostic) condition had just been presented (not presented) with information about which attribute values made a song highly functional.

Participants in the personal choice condition were asked to "choose one of the five songs available for a listening sample," whereas participants in the serendipity condition were told that we would randomly select one song for them to listen to on the next page. Once participants proceeded to the next page, the song started playing. We fixed the listening page to auto-advance after 60 seconds, so every participant would listen to the same amount of music. To increase immersion and realism, we used existing functional music and imagery associated with the Brain.fm service throughout the survey.

After participants listened to the song, we asked, "How satisfied are you with the song you just listened to?" and "How satisfied are you with the song listening experience in general?" (1 = "not at all satisfied," and 7 = "very satisfied"), which formed a satisfaction index ($r = .85$). We also asked about interest in the platform ("How interested would you be in subscribing to Brain.fm's platform?" [1 = "not at all," and 7 = "very interested"]) and willingness to recommend ("How likely are you to recommend Brain.fm's subscription service to a friend?" [1 = "not likely at all," and 7 = "very likely"]). In addition, we assessed willingness to pay: "Brain.fm has several subscription options, and such as other platforms (e.g., Spotify, Apple Music), the monthly plan costs between \$5 and \$15. How much are you willing to pay for a one-month subscription to Brain.fm?," with a slider scale ranging from \$5 to \$15.

Participants then responded to a serendipity measure. We told them to consider their experience with Brain.fm and how the platform works, and asked, "Getting to experience this one song I just listened to ended up being a good surprise," "Considering the song selection process, I feel lucky to have come across the song I listened to," "From what it could have been, I feel that the song I listened to was an unexpected discovery," and "I feel that there was some element of chance

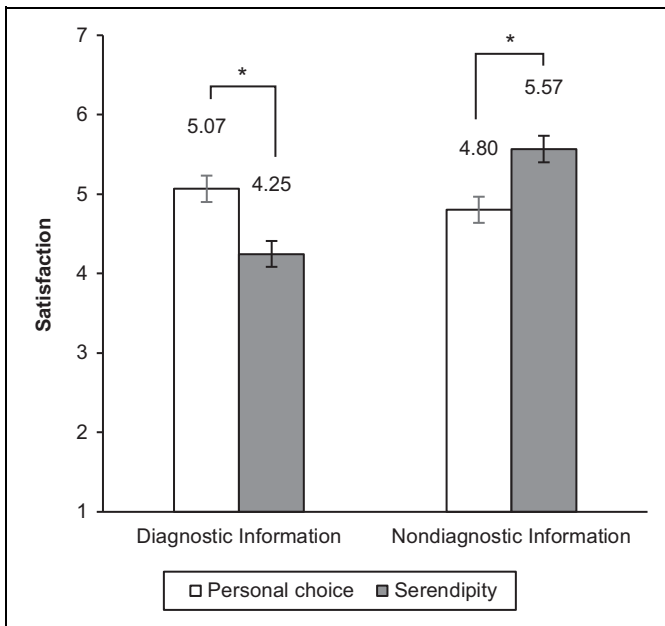


Figure 4. Study 4 results.

* $p < .01$.

Notes: Error bars = ± 1 SEs.

involved in having experienced this specific song I just listened to” (1 = “strongly disagree,” and 7 = “strongly agree”). We combined the items to form a serendipity index ($\alpha = .89$). We also measured participants’ perceived knowledge to make a choice using four items (e.g., “From the information provided about functional music, I was knowledgeable enough to choose a song to listen to”), and verified whether perceived knowledge mediated the results when diagnostic information was presented, which it did. These items and their analyses are presented in Web Appendix D. Finally, we measured regret, scrutinizing, and expectations.

Finally, we asked two manipulation check questions: “To which extent did you make your own song choice?” (1 = “not at all,” and 7 = “very much”) and “How much information was provided about what attributes are necessary for a good functional song?” (1 = “not much,” and 7 = “very much”).

Results

Manipulation checks. Participants in the personal choice condition indicated making their own choice ($M = 5.51$, $SD = 1.45$) to a greater extent than those in the serendipity condition ($M = 1.70$, $SD = 1.33$; $F(1, 389) = 735.08$, $p < .001$). There was no interaction between condition and information ($F < 1$). Participants in the diagnostic information condition indicated that information about what attributes are necessary for a good functional song were provided to a greater extent ($M = 5.49$, $SD = 1.37$) than in the nondiagnostic information condition ($M = 4.20$, $SD = 1.74$; $F(1, 389) = 66.34$, $p < .001$).

Satisfaction. A 2 (condition) \times 2 (information) ANOVA revealed a main effect of information, such that satisfaction

was higher when the information was nondiagnostic ($M = 5.18$, $SD = 1.62$) rather than diagnostic ($M = 4.65$, $SD = 1.74$; $F(1, 389) = 10.23$, $p = .001$). There was no main effect of condition ($F(1, 389) = .028$, $p = .868$). The interaction was significant ($F(1, 389) = 23.01$, $p < .001$; see Figure 4). When the information was nondiagnostic, satisfaction was greater in the serendipity ($M = 5.57$, $SD = 1.29$) than in the personal choice condition ($M = 4.80$, $SD = 1.82$; $F(1, 389) = 10.64$, $p = .001$). When the information was diagnostic, satisfaction was greater in the personal choice ($M = 5.07$, $SD = 1.61$) than in the serendipity condition ($M = 4.25$, $SD = 1.77$; $F(1, 389) = 12.41$, $p < .001$). None of the results for the measured alternative explanations could explain the pattern of results on this and the other dependent variables (for detailed analyses, see Web Appendix D).

Interest in the platform. A 2 (condition) \times 2 (information) ANOVA on interest did not reveal main effects of condition ($F(1, 389) = .028$, $p = .867$) or information ($F(1, 389) = .110$, $p = .741$). The interaction was significant ($F(1, 389) = 22.56$, $p < .001$). When the information was nondiagnostic, interest was greater in the serendipity condition ($M = 4.63$, $SD = 1.80$) than in the personal choice condition ($M = 3.65$, $SD = 2.01$; $F(1, 389) = 12.00$, $p = .001$). When the information was diagnostic, interest was greater in the personal choice ($M = 4.53$, $SD = 2.02$) than in the serendipity condition ($M = 3.61$, $SD = 2.05$; $F(1, 389) = 10.58$, $p = .001$).

Willingness to recommend. A 2 (condition) \times 2 (information) ANOVA on willingness to recommend did not reveal main effects of condition ($F(1, 389) = .026$, $p = .872$) or information ($F(1, 389) = .651$, $p = .420$). The interaction was significant ($F(1, 389) = 34.37$, $p < .001$). When the information was nondiagnostic, willingness to recommend was greater in the serendipity condition ($M = 4.65$, $SD = 1.77$) than in the personal choice condition ($M = 3.59$, $SD = 1.86$; $F(1, 389) = 16.13$, $p < .001$). When the information was diagnostic, willingness to recommend was greater in the personal choice condition ($M = 4.53$, $SD = 1.86$) than in the serendipity condition ($M = 3.41$, $SD = 1.87$; $F(1, 389) = 18.28$, $p < .001$).

Willingness to pay. A 2 (condition) \times 2 (information) ANOVA on willingness to recommend did not reveal main effects of condition ($F(1, 389) = .001$, $p = .982$) or information ($F(1, 389) = .002$, $p = .968$). The interaction was significant ($F(1, 389) = 8.74$, $p = .003$). When the information was nondiagnostic, willingness to pay was greater in the serendipity condition ($M = 8.42$, $SD = 3.45$) than in the personal choice condition ($M = 7.39$, $SD = 3.11$; $F(1, 389) = 4.41$, $p = .036$). When the information was diagnostic, willingness to pay was greater in the personal choice condition ($M = 8.42$, $SD = 3.86$) than in the serendipity condition ($M = 7.42$, $SD = 3.86$; $F(1, 389) = 4.34$, $p = .038$).

Mediation by feelings of serendipity. A 2 (condition) \times 2 (information) ANOVA on feelings of serendipity revealed a main effect of condition, such that participants in the serendipity

condition ($M = 4.67$, $SD = 1.57$) reported greater feelings of serendipity than those in the personal choice condition ($M = 3.96$, $SD = 1.70$; $F(1, 389) = 19.64$, $p < .001$). The interaction ($F(1, 389) = .357$, $p = .550$) and main effect of information ($F(1, 389) = 2.72$, $p = .100$) were not significant.

We conducted a bootstrapping moderated mediation analysis using PROCESS Model 15 (Hayes 2018), with the moderator influencing the indirect path postmediator. We used condition (serendipity vs. personal choice) as the independent variable, information as the moderator, and feelings of serendipity as the mediator for each of the outcomes we measured. For the satisfaction measure, the index of moderated mediation was significant (index = $-.42$; 95% CI: $[-.70, -.20]$). When the information was nondiagnostic, the pathway to satisfaction through feelings of serendipity was positive ($\beta = .49$, $SE = .12$, 95% CI: $[.26, .75]$). When the information was diagnostic, the pathway to satisfaction through feelings of serendipity was not significant ($\beta = .08$, $SE = .06$, 95% CI: $[-.03, .20]$). These results suggest that feelings of serendipity drive satisfaction when consumers do not think they have all the knowledge necessary to make a choice themselves. A similar pattern emerged for the interest, willingness to recommend, and willingness to pay measures (see Web Appendix D).

Discussion

In support of H_4 , Study 4 demonstrates that when consumers perceive that they have enough knowledge to make their own choices, they are more satisfied with product encounters that they choose than those that occur serendipitously. Feelings of serendipity were still high, but serendipity was simply not as desirable when consumers perceived they had the information they needed to make a choice. These findings are theoretically and managerially important because they show that consumers may sometimes experience feelings of serendipity, which are not negative, but still prefer to make their own choices. In addition, marketers should be careful to not provide too much diagnostic information that can lead consumers to believe that others should not choose for them. To provide further theoretical and practical insight, Web Appendix D–1 presents an additional study examining the role of information in encounters involving serendipity.

General Discussion

This research developed and tested a conceptualization of the role of serendipity in the marketplace. We proposed that feelings of serendipity arise when a consumer encounter is positive, unexpected, and attributed to some degree of chance. The results of four main studies and two supplemental studies support our conceptualization. In multiple domains (online subscription services, works of art, movies, food consumption, and music), the presence of serendipity (Studies 1–4, C–1, and D–1) positively influenced satisfaction, enjoyment, meaningfulness, willingness to pay, willing to recommend, and interest. This effect was attenuated when the encounter was negative

(Study 2), when a product recommendation was deterministic (i.e., carefully controlled by a marketer; Study 3), and when consumers believed they had enough knowledge to make their own choices (Study 4). In contrast, the effect was enhanced when consumers believed there was a high degree of randomness involved in the selection of the experience, which increased attributions of the experience to chance (Study 3).

Theoretical Implications

This research has implications for the literature on serendipity. Some research has examined consumers' appreciation for online recommendations (Ge et al. 2010) but has not provided much evidence for how well recommendations work compared with personal choices and what it is about these recommendations that consumers see positively. We show that feelings of serendipity associated with a recommendation make the consumer experience more positive compared with having a personal choice, and that these feelings can influence a large set of consumer-relevant outcomes. This implies that, instead of simply making recommendations that try to match previous behavior and stated preferences, online recommendation services should design experiences that appear to involve chance, as this will make consumers more satisfied.

The role of chance uncovered in this research informs the literature on surprise in the marketplace. Surprising events can be positive or negative (Calvo and Castillo 2001; Loewenstein 1994), and the current research suggests that studies investigating consumer responses to unexpectedness must consider the degree of chance involved. Responses to positive surprises may not be as positive if the consumer is aware that the surprise was carefully planned by a marketer. This implies that the literature on surprise should manipulate or measure the perceived amount of chance that led to something unexpected happening, as this may provide knowledge on why surprises are sometimes so positive (attributed to chance: "this was meant to be") and sometimes not (attributed to specific events "I know exactly how this happened").

The current work also contributes to the literature on uncertainty and how it influences consumption. Uncertainty and low control are associated with stress (Durante and Laran 2016) and lead consumers to engage in behaviors to regain control (Cutright and Samper 2014; VanBergen and Laran 2016). Research investigating how uncertainty and low control influence choice and consumption should be cautious about the role of chance. Leading consumers to believe that something happened as a result of random events could backfire if the encounter turns out to be negative. The result could lead not only to lower consumer satisfaction but also to magnified negative consequences for a consumer's well-being. If an encounter becomes negative (e.g., a movie that leads a consumer to remember traumatic life events, a product the consumer is allergic to), an attribution to chance may generate a strong emotional reaction, which would otherwise be attenuated if the experience was attributed to a specific source. This does not mean that the study of serendipity should be limited because of

the possibility that consumers are averse to uncertainty and low control. Instead, serendipity needs to be further explored and be accompanied by a clear understanding of what brings positive value to the consumer.

Moreover, the current work shows that serendipity occurs when the consumer does not choose a specific product or experience, which means that our findings inform work on consumer preference for choice (Botti and Iyengar 2006; Botti and McGill 2006; Chernev 2003). Prior work has shown that people generally like choosing and having more options, and that personal control over choice can increase satisfaction. Alternatively, the current research aligns with the smaller set of evidence on how choice does not always lead to greater satisfaction. This implies that the assumption that choice is preferred over not having choice must be revised to include considerations about how much serendipity is involved when there is no choice. Consumers may prefer the ability to choose, but the absence of choice can lead to greater satisfaction when the consumption context is positive, unexpected, and involves attributions to chance.

Finally, this research has implications for the literature on how the absence of deliberative choice influences well-being (Iyengar and Lepper 1999; Raghunathan and Irwin 2001). Relatively little marketing research has examined how conditions that lack deliberate action influence consumer outcomes. Here, the lack of deliberative choice made products and experiences seem more meaningful. This is important because part of being happy is the feeling that there is meaning in life (Lambert et al. 2013). A lack of meaning is aversive and leads people to immediately engage in meaning restoration (Heine, Proulx, and Vohs 2006). This means that, instead of focusing on understanding how consumers actively seek meaning, researchers may help consumers by putting more emphasis on events that generate meaning without the need for consumers to actively search for it. Our findings show that marketers can structure several contexts, across industries, to imbue experiences with meaning.

Practical Implications

These findings have important implications for marketers and consumers. Consider the different domains in which marketers sell based on recommendations. Marketers may want to emphasize the number of options available and how the encounter with a specific option is a result of chance or randomness. Enhancing perceptions of chance engenders the sense that an experience was “meant to be” given the number of alternative outcomes and increases satisfaction with the recommendation. This strategy is most effective, of course, when the recommendations are positive, and it provides an alternative to the view that consumers appreciate knowing that a marketer has specifically tailored an option to them.

In fact, the current research suggests that decreasing the salience that there is a marketer behind the recommendations enhances enjoyment. Thus, marketers should avoid framing an experience with communication suggesting that the firm has “made this selection carefully for you after examining your

preferences.” This is important because much marketing communication highlights the targeting process by informing consumers that a product was selected for them based on what the company knows about their preferences. The recommendations may be good, but such emphasis decreases the likelihood that consumers will experience feelings of serendipity, as attribution to chance and luck is replaced by an attribution to being watched and targeted by a specific firm. Of course, recommendations are, by definition, made by the company behind a product, but this fact need not be salient at the time a recommendation is made.

In addition, companies may consider enhancing consumer experiences by providing more opportunities for serendipitous encounters. For example, consumers may enjoy some unexpected events more as part of vacation packages relative to events they personally choose to experience. These events could be partially planned, as when consumers know there will be unexpected activities but do not know when or what they are, or completely unplanned, as when consumers are given free time as part of a travel package but are surprised by an activity that feels serendipitous. While vacation packages mostly involve activities chosen by the travel agency (i.e., the marketer), these are typically previously determined and known by consumers, which our results indicate may not always generate the highest level of enjoyment and satisfaction.

Another valuable insight is that distancing the consumer from the controlled act of choice can systematically enhance and sustain enjoyment over longer periods of time. This insight can inform strategies for promotion tactics such as induced trials via sampling, mailers, and event marketing, whereby marketers can take extra steps to imbue such situations with serendipity. For example, when companies send small product samples to consumers via mail, they typically provide a lot of information about the product, its benefits, and why the consumer is receiving the product. Our findings indicate that providing less information, leaving room for thoughts about how there may have been some chance involved in receiving that exact sample product, may increase enjoyment and the likelihood that the consumer will buy the product.

The idea of providing less information about the recommendation mechanism also has implications for online recommendations. These are typically based on consumers’ profiles, preferences, and previous behavior (Lee, Liu, and Lu 2002). There are varying levels of satisfaction with these recommendations, and our findings indicate that this variation can be partially explained by how much diagnostic information consumers have about how the services work, how the selections are made, and the options themselves. Making recommendations is a well-advised strategy as long as the information provided to consumers does not make them believe that they know enough to make their own choices. In these cases, consumers still have feelings of serendipity, but these feelings do not translate to higher satisfaction with the recommendation and the experience as a whole. This means that services that use recommendations can still provide important information to consumers but must be careful not to provide too

much diagnostic information that will decrease the appeal of an experience that the consumer does not choose.

Moreover, the positive effect of serendipity was mitigated when the product had a negative valence. This suggests that for products that may generate negative affect, from solemn movies to more critical experiences such as medical services, attempts to imbue the experience with serendipity would likely result in a stronger negative appraisal of the experience. Negative experiences do not benefit from serendipity, and serendipity can even exacerbate the negativity, as was the case in Study 2.

An interesting question is whether serendipity will translate to increased satisfaction when the product encounter and consumption do not occur at the same time. There are subscription services, such as those for books or wine, where consumers receive a product and only consume it later. Study 1 provides some insight into this question, as consumers who experienced feelings of serendipity showed higher satisfaction up to a month after receiving the products. However, people wear clothes over and over again, which means that eventually the effect of serendipity should fade away. For products that are consumed once, apart from the initial product encounter, we speculate that feelings of serendipity will still have an effect on satisfaction. The surprise may not be present anymore, but attributions to chance, and the feeling that the consumer was lucky, should still have an influence on the enjoyment of the experience. This is an important extension that future research could explore.

The findings also have implications for when consumers buy gifts. Often, the receiver knows they will receive a gift, and sometimes a person receives a gift by surprise. We all know that receiving a surprise gift is positive, but our findings show a way to make the experience even more positive for the gift receiver. The gift giver could communicate that there were many options to choose from or that one option was selected on the basis of intuition rather than much deliberation. This may generate feelings of serendipity for the receiver of the gift and increase satisfaction. This recommendation is interesting, as we tend to believe that signaling effort and planning behind the choice of a gift makes the receiver more satisfied with the gift. However, this belief ignores the possibility that serendipity can also enhance gift giving, which is an avenue for future research.

Limitations

The benefits of serendipity emerged across many categories, but it is possible that the effects would not emerge for certain products and experiences. The effects may be less evident for durable goods that are relatively expensive (e.g., cars, appliances), for products or services that require an extended amount of information gathering before being experienced (e.g., surgical procedures, medical treatments), or for products that have a less hedonic orientation than those we investigated. In addition, in the context of ordinary experiences that occur regularly (e.g., an ice cream vendor that visits one's

neighborhood nightly), consumers may expect to find them, which decreases the likelihood that consumers will have feelings of serendipity related to these experiences. Future research is needed to examine whether product type or the frequency with which an experience occurs alters the serendipity effect.

Further, it is unclear if the results would hold for products associated with strong, preexisting brand preferences (e.g., colas). It is possible that the effects are specific to the experience of products or services for which preexisting preferences or brand loyalty are not strong (Chernev 2003). This is a common phenomenon in consumer decision-making research, as strong previous attitudes and preferences may be immune to the effect of marketer-driven manipulations. This is not something we tested in the current investigation, but could be explored in future research.

Despite these limitations, we consistently found that serendipity leads to positive outcomes. Complementing previous research on the positive power of uncontrolled events (Kray et al. 2010; Morewedge et al. 2014), the effects emerged because people perceived such events to involve surprises and chance. Given that little marketing research has examined consumer outcomes when events are not deliberately orchestrated, future work is poised to build on these findings to further consider the varied effects that can emerge when the absence of choice signals the presence of serendipity.

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