Does music in the mall affect your shopping decisions?—explaining the compromise effect in extremeness aversion theory

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Date: 2022-11-21T00:00:00+00:00

Abstract

The compromise effect commonly occurs in shopping contexts. Does aversion to extremes drive such compromise behavior? Experiment 1 manipulated psychological expectancy loss values among alternative options based on expected-loss minimization theory. Experiment 2 further verified that extremeness aversion theory supports the compromise effect by manipulating, according to context effect theory, the psychological proximity of contextual data (excited vs. calm) to mental representational clarity (EL size). The results demonstrated that the smaller the gap in psychological expectancy loss, the more pronounced the compromise effect became. Data from excited contexts weakened the compromise effect in groups with a larger gap in psychological expectancy loss, whereas the compromise effect was more salient in groups with a larger gap in psychological expectancy loss. Data from calm contexts enhanced the compromise effect in groups with larger psychological expectancy loss and weakened the compromise effect.

Full Text

Preamble

Does Music in the Mall Affect Your Shopping Decisions? –Explaining the Compromise Effect in Extremeness Aversion Theory

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Nov 21, 2022

Author Note
Data are openly available at the project' s Open Science Framework page (https://osf.io/6rneq/?view_{only}=76bad4dc8c404fbc865058303c93b1a7).

We have no conflicts of interest to disclose. We gratefully acknowledge funding from the Social Science Fund of Fujian province, China Grant No. FJ2021B071 (Haibo Yang).

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Abstract

The compromise effect is common in shopping contexts. Is it our aversion to extremes that leads us to compromise? Experiment 1 manipulated the psychological expected loss values among alternative options based on expected-loss minimization theory. Experiment 2 further verified that extremeness aversion theory supports the compromise effect by manipulating the psychological proximity of contextual data (excited vs. calm) to mental representational clarity (EL size) based on context effect theory. The results showed that the smaller the gap in psychological expectancy loss, the more pronounced the compromise effect became. Excited situation data weakened the compromise effect in groups with a greater gap in psychological expectancy loss, while the compromise effect was more obvious in groups with a larger gap in psychological expectation loss. Calm situation data enhanced the compromise effect in groups with a larger loss in psychological expectancy and weakened the compromise effect.

Keywords: Compromise effect; Extremeness aversion; Expected-loss; Context effect; Conceptual metaphor

1.1 Theoretical Framework and Hypotheses for the Compromise Effect

The compromise effect is the phenomenon whereby an option is chosen at a much higher percentage when it represents a compromise in the choice set compared to extreme options (Kivetz et al., 2004; Simonson, 1989). As shown in Figure 1 [Figure 1: see original paper], when A moves toward B, the loss of A on attribute 2 is offset by the gain of B on attribute 1, making AB the consumer' s trade-off line, and option A is considered essentially indistinguishable from option B. Option C is located on the AB extension line, so option C is also considered equivalent to option B, but the addition of option C increases the proportion of choices for option B. This is the compromise effect (Sheng et al., 2005).

In general, the occurrence of compromise effects can be determined by whether the proportion of intermediate choices is significantly higher than the proportion of extreme choices. However, the improved paradigm sets the options at four and divides them into two groups for decision-making to eliminate the effect of bias in participants' choice preferences. Specifically, in a choice set A/B/C, the proportion of participants who chose option B in both options B/C is denoted as a; in a choice set B/C/D, the proportion of participants who chose option B

in both options B/C is denoted as b. The size of the compromise effect is then calculated as $a - b$ (Kim et al., 2018).

1.2 Theoretical Mechanisms of Compromise Effects

Extremeness aversion theory suggests that the compromise effect arises because people value losses more than gains, and loss aversion extends to the comparison of advantages and disadvantages among options in the contextual effect. People prefer the compromise option due to loss aversion because it is the least disadvantageous compared to other options (Simonson & Tversky, 1992). When comparing option A to option B, A' s loss on attribute 1 is essentially the same as A' s gain on attribute 2, but since consumers value loss over gain, they psychologically believe that A' s gain on attribute 2 is not enough to offset A' s loss on attribute 1. The comparison between options B and C is similar. The addition of option C made consumers more aware of option B' s "dominance" and ultimately yielded the compromise effect.

Researchers (Simonson & Tversky, 1992; Sheng et al., 2005) proposed the Expected-Loss (EL) minimization theory from the perspective of psychological expectations: there is a psychological trade-off for consumers to maximize their benefits.

$$EL = \sum P_i(V_i - V_S)$$

where $\sum P_i = 1$; $i = A, B, C$. Here, EL is the expected loss; P_i is the probability that all the alternative options are the best-targeted options; V_i is the value of the alternative options; and V_s is the value of the option chosen by the consumer.

Based on Figure 1, we assume that $V_i - V_s = \sqrt{(x_i - x_s)^2 + (y_i - y_s)^2}$. Since it is impossible to determine the best option for consumers, we assume that $P_A = P_B = P_C = 1/3$. Also, assuming that alternatives A, B, and C are positioned at the same distance on the trade-off line, with the value (i.e., straight-line distance) from A to B being 1 unit and the value from A to C being 2 units, the expected loss to the consumer for choosing each option is:

A: $EL = P_A(V_A - V_A) + P_B(V_B - V_A) + P_C(V_C - V_A) = 1/3 \times 0 + 1/3 \times 1 + 1/3 \times 2 = 1$

B: $EL = P_A(V_A - V_B) + P_B(V_B - V_B) + P_C(V_C - V_B) = 1/3 \times 1 + 1/3 \times 0 + 1/3 \times 1 = 2/3$

C: $EL = P_A(V_A - V_C) + P_B(V_B - V_C) + P_C(V_C - V_C) = 1/3 \times 2 + 1/3 \times 1 + 1/3 \times 0 = 1$

In sum, option B has the smallest EL size and is thus reflected in the choice of extreme aversion. Therefore, this study suggests that the expected loss minimization theory is the intrinsic mechanism of extremeness aversion theory, but the relationship between them needs further study.

According to the expected loss minimization theory, we vary the EL value of each option so that the two extreme options of the option set deviate from the compromise option or are close to the compromise option in the expectation of changing the compromise effect. Hypothesis 1 is then formulated: due to aversion to extremes, the compromise effect arising from a large EL value is greater than the compromise effect arising from a small EL value.

1.3 The Bridge between Emotion and Compromise Effects —Context Effects

Context effect refers to the effect of context on word recognition during reading. It explains how external background data influence the process of evaluating target objects and whether they generate concepts or sensations (Meyers-Levy et al., 2010). When assessing a target object, the concept or sensation of contextual data activation can affect two processing stages. At the encoding stage, if the concept or sensation of contextual data activation corresponds to the characteristics of certain aspects of the target object, then contextual activation data can be used as a framework for rapid interpretation (Tory Higgins et al., 1977) and to help decision makers understand the target object, a process known as assimilation effects. At the judgment stage, using concepts or sensations generated by background data as a reference to help decision makers assess target objects more quickly is called contrast effects (Kim & Meyers-Levy, 2008).

This study intends to adopt the conceptual metaphor paradigm (Giessner & Schubert, 2007; Larson & Billeter, 2013; Ricoeur, 1978) to stimulate the context of compromise effect, that is, music is used to evoke "exciting" and "calm" emotions, and then trigger its metaphorical association with concepts related to "extreme" and "compromise."

Psychological closeness is an important factor in the occurrence of assimilation effects and contrast effects (Brewer & Weber, 1994; Brown et al., 1992; Lockwood & Kunda, 1997; Pelham & Wachsmuth, 1995; Tesser et al., 1988). Such contextual data may only be useful at different stages of target assessment if the target object and the contextual data are similar in some dimensions. This study proposes hypothesis 2: it is because the two emotional states of "calm" and "excited" stimulated by contextual data and the two concepts of "compromise" and "extreme" of choice set are psychologically close that contextual data can weaken or enhance the compromise effect. In research, psychological proximity can be operationally defined as whether an individual has a clear mental representation of the target object (Meyers-Levy et al., 2009).

At the encoding stage, contextual data may lead to a reinforcing effect on the initial impression of the ambiguous target product. However, at the judgment stage, the activation concept should be used as a reference standard to compare with the target product, and the reference effect is possible only if the product representation is sufficiently precise and has good boundaries (Kim & Meyers-Levy, 2008). If the mental representation is poor, then the input contextual data

will serve as a complementary description to refine the individual' s perception of the target object and will have a reinforcing effect in the encoding stage. If the mental representation is clear, then the contextual data will become the reference body in the assessment process and will play a referential role in the judgment stage, amplifying its difference from the target object.

From this, the study infers that if extremeness aversion theory is correct and expected loss minimization theory is its underlying mechanism, then the clarity of the decision maker' s definition of the mental representation of the option set (i.e., the target object) can be adjusted when we change the EL value of the option set so that its two extreme options deviate from or are close to the compromise option. Specifically, if the EL size is small, the decision maker' s mental representation of it is ambiguous, and conversely, if the EL size is large, the decision maker' s mental representation of it is clear. We further propose hypothesis 3: if individuals have a poor mental representation of the target object, the input contextual data will play a complementary role in the encoding stage.

The "calm" contextual data has psychological proximity to the "compromise" concept, which leads individuals to feel that the compromise option is more "compromising" and eventually they are more willing to choose the compromise option, and the compromise effect is enhanced. The "excited" contextual data and the compromise option representing "compromise" do not have the same psychological proximity, which in turn will dilute the subjects' perception of the "compromise" nature of the compromise option and eventually the compromise effect will be weakened. On the other hand, if the individual' s mental representation of the target object is clear, then the input contextual data will play the role of a "referent" at the judgment stage. When the "calm" contextual data will have a reduced compromise effect due to its psychological proximity to the compromise option representing "compromise." The "excited" contextual data will have the condition to become the referent of the individual' s evaluation process of the target object—the compromise effect will be enhanced by the fact that the "excited" contextual data and the "compromise" compromise option are essentially opposite in nature.

Transparency and Openness

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. All data and research materials are available on the page (https://osf.io/6rneq/?view_{only}=76bad4dc8c404fbc865058303c93b1a7). Data were analyzed using SPSS. This study' s design and its analysis were not pre-registered.

2.1 Product Attribute Settings

Combining previous literature studies (Carroll & Vallen, 2014; Chuang et al., 2013; Kim et al., 2018; Kivetz et al., 2004; Larson & Billeter, 2013; Simonson,

1989) and subject characteristics, clothes were selected as the experimental material for product selection, and 71 participants were invited to participate in the "product attribute importance score." After removing invalid data (one or more properties with 0 values), two important properties with no significant difference in rating were selected as experimental materials. These were style (M = 19.27, SD = 1.29) and fit (M = 18.70, SD = 0.86), F(5, 53) = 5.90, p = 0.73, ^{2} = 0.08. In addition, price (M = 17.97, SD = 1.07); color (M = 13.34, SD = 0.84); fabric comfort (M = 17.56, SD = 1.09); and frequency of use (M = 13.17, SD = 1.42).

To avoid situations where too small attribute value leads participants to refuse to consider attributes or too much attribute value leads participants to favor attributes too much, we set the psychological satisfaction score for both attributes to 60-90 and designed Table 1 and Table 2 with the largest possible variation in EL size.

TABLE 1
CHOICE SET OF ABC AND BCD OPTIONS WITH A SMALL EL SIZE

ABC condition	BCD condition
Cloth 1	Cloth 4
Cloth 2	Cloth 5
Cloth 3	Cloth 6
Style (rated 0-100)	Fit (rated 0-100)

TABLE 2
CHOICE SET OF ABC AND BCD OPTIONS WITH A LARGE EL SIZE

ABC condition	BCD condition
Cloth 1	Cloth 4
Cloth 2	Cloth 5
Cloth 3	Cloth 6
Style (rated 0-100)	Fit (rated 0-100)

EL size options A, B, C, and D with different EL size are represented on the axis, as shown in Figure 2 [Figure 2: see original paper]. It can be seen that the extreme options AC (ABC choice set) or BD (BCD choice set) are closer to the compromise options B (ABC choice set) or C (BCD choice set) with smaller EL size and larger EL size.

FIGURE 2 [Figure 2: see original paper]
DISTRIBUTION FEATURES OF CHOICE SET UNDER DIFFERENT EL SIZE

2.2 Choice of Music Stimulus Materials

A total of 16 participants were recruited for the study and asked to rate 14 pieces of music qualitatively. After listening to each piece of music, participants made a binary choice of "yes" or "no" to the attributes on the scale, with the final score being "1" for "yes" and "0" for "no." The music scale was translated from the Music Perception Project (Loureiro et al., 2021), and the results of the experiment are shown in Appendix A and Appendix B. The higher the overall ratings, the more music stimulates the appropriate emotions. Four pieces of music (two each for excited and calm music) were selected for the context data, with the exciting music being "采风乐坊-蓄势 ~GEAR UP~" (N=77) and "吉田潔-Matsuri" (N=72). The calm music is "広橋真紀子 - My Memory ~' 冬のソナタ' より" (N=74) and "Vladimir Ashkenazy-Nocturne in C Minor (c 小调夜曲)" (N=63). We chose to edit and synthesize core music of the same nature and played the final two synthesizers in our experiment.

3.1 Overview

The purpose of Experiment 1 was to investigate the effectiveness of the EL size in the pilot experiment. If the expected loss minimization theory is sound, the compromise effect is smaller in groups with small gaps in the EL size and larger in groups with large gaps in the EL size.

3.2 Design

The experimental design was a 2 (EL size: small, large) × 2 (choice set: ABC, BCD) between-subjects design. Independent variable 1 was the EL size between extreme and compromise options at two levels (small and large), and independent variable 2 was the choice set at two levels (ABC and BCD). The dependent variable was the size of the compromise effect: $a - b$ (Kim et al., 2018). Figure 2 shows the manipulation of the EL size and choice set. In addition, to avoid selecting position preferences of participants that affected outcomes, we randomly assigned selection sequences from the choice set ABC and BCD during the trial.

3.3 Procedure

In this study, 82 subjects (79.3% female, mean age = 22.09 years, SD = 2.4 years, range 18-28 years) were recruited at a Normal University. All participants had normal or corrected vision and had not participated in a similar experiment before. Participants signed an informed consent form before the experiment began and received a small payment at the end. Two data points with short response times were excluded, and the final analysis included a total of 80 data points.

Participants were randomly assigned to one of the four conditions. After reading the description of the simulated reality, the shopping decision for clothes products was completed directly, as shown in Table 1 and Table 2. The experiment

was programmed with E-Prime 2.0.

3.4 Results and Discussion

Following data processing by Kim et al. (2018), to test whether the EL size of the choice set changes the size of the compromise effect, we performed a binary logistic regression analysis in which product selection was the dependent variable (1 = choice option B, 0 = choice option C). Independent variables were the choice set (ABC or BCD), EL size (large or small), and interactions between them. As shown in Figure 3 [Figure 3: see original paper], the main effect margin of EL size was significant (Wald = 3.59, OR = 0.25, p = 0.058). The compromise effect produced by the large EL size group was significant at the 0.05 level (the proportion of option B in the two BC options was 55.6% (10/18) and 20% (4/20) in the ABC and BCD conditions, respectively, with a compromise effect size of 35.6% (Z = 2.27, p = 0.012). The compromise effect produced by the small EL size group was not significant (the proportion of option B in the two BC options was 58.8% (10/17) and 50% (9/18) in the ABC and BCD conditions, respectively, with a compromise effect size of 8.8% (Z = 0.52, p = 0.301).

FIGURE 3 [**Figure 3: see original paper**]
BINARY LOGISTIC REGRESSION RESULTS ARE INFLUENCED BY EL SIZE AND CHOICE SET

TABLE 3
COMPROMISE EFFECTS UNDER DIFFERENT EL SIZE CONDITIONS

Options	Choice set	Small EL size	Large EL size
Compromise effect (ABC vs. BCD)	(3/20) (10/20) (7/20) (9/20) (9/20) (2/20)	+8.8%, Z = 0.52, p = 0.301 (10/17 vs. 9/18)	(1/19) 52.6% (10/19) 42.1% (8/19) 19.0% (4/21) 76.2% (16/21) (1/21) +35.6%, Z = 2.27, p = 0.012 (10/18 vs. 4/20)

Note. Numbers in parentheses show the raw choice data and cell sizes.

The experimental results showed that our EL size manipulation was effective, producing a compromise effect of only 8.8% in the group with a small EL size and 35.6% in the group with a larger EL size, which validates the rationality of the expected loss minimization theory. That is, increasing the distance from the extreme option to the compromise option in the ABC or BCD choice set would increase the psychological expected loss gap between the extreme option

and the compromise option, leading participants to lean toward the compromise option.

The extremeness aversion theory can be described as a state of mind in which the decision maker abhors the extreme option, while the addition of the third option highlights the superiority of the compromise option, which results in the compromise effect. As we mentioned earlier, if the expected loss minimization theory is "this state of mind," then if we input mental concepts of "extreme" and "compromise" similar to contextual data, they would have opposite effects on the compromise effect under different EL size conditions. Therefore, we designed Study 2 to explore this issue and further illustrate the compromise effect of extremeness aversion. To obtain convincing experimental results, we continued to use the product selection materials from Experiment 1.

4.1 Overview

Study 2 further supports that extremeness aversion theory underlies the compromise effect by manipulating the psychological closeness of context data (excited vs. calm) to mental representation clarity (EL size) according to context effects theory. Hypothetically, exciting context data would weaken the compromise effect in the group with a smaller mental expectancy loss gap and enhance it in the group with higher mental expectancy loss; calm context data would enhance the compromise effect in the group with smaller mental expectancy loss and weaken it in the group with higher mental expectancy loss.

4.2 Design

The experimental design was a 2 (context data: excited, calm) × 2 (EL size: small, large) × 2 (choice set: ABC, BCD) between-subjects design. In the excited contexts, participants received the excited music; in calm contexts, participants received the calm music. Manipulation of EL size and choice set is shown in Figure 2. As in Experiment 1, the order of the options in ABC and BCD was presented randomly during the trial.

4.3 Procedure

In this study, 205 participants (71.2% female, mean age = 20.33 years, SD = 2.21 years, range 16-29 years) were recruited to participate in the experiment at a Normal University. All participants had normal or corrected vision and had not previously participated in a similar experiment. Participants signed an informed consent form before the experiment began and received a small payment at the end.

Participants were randomly assigned to any of eight conditions. After reading the instructional phrase, participants first listened to three minutes of music (Egermann et al., 2015; Kellaris & Kent, 1993; Naser & Saha, 2021; Spangenberg et al., 2005). Participants who entered the exciting context data listened

to a pre-cut synthesized song that evoked an exciting mood, and participants who entered the calm context data listened to a pre-cut synthesized song that evoked a calm mood. They then rated their current mood state on an 11-point mood rating scale (Song et al., 2016), with 0 indicating very calm and 10 indicating very excited, and finally completed the same shopping decisions as in Experiment 1.

4.4 Results and Discussion

Manipulation Test for Emotion Initiation. Thirteen participants were excluded due to unsuccessful emotional initiation, and a total of 153 data points were included in the final calculation. Independent sample t-tests were conducted with the type of music (excited vs. calm) as the independent variable and emotional self-ratings as the dependent variable. As shown in Figure 4 [Figure 4: see original paper], there was a significant difference between emotional scores in excited music context ($M = 5.88$, $SD = 2.41$) and those in calm music context ($M = 2.39$, $SD = 1.65$), $t(190) = -11.74$, $p < 0.001$, Cohen' s $d = 1.69$, 95% CI = [-4.08, -2.91].

FIGURE 4 [Figure 4: see original paper]
EXCITEMENT AND CALM CONTEXT MOOD SCORES

Effect of Context Data and EL Size on Compromise Effects. To test whether the compromise effect differs across different EL sizes, we performed a binary logistic regression analysis on data related to clothes product choice, where product choice was the dependent variable (1 = choose option B, 0 = choose option C) and the independent variables were the choice set (ABC or BCD), the type of context data (excited or calm), the EL size (large or small), and their interaction.

Results showed a significant interaction between context data type and EL settings, as shown in Figure 5 [Figure 5: see original paper] and Figure 6 [Figure 6: see original paper] (Wald = 12.15, OR = 40.00, $p < 0.001$).

BINARY LOGISTIC REGRESSION OF CONTEXT TYPE INTERACTION WITH EL SIZE
FIGURE 5 [Figure 5: see original paper]
(Reference category: ABC) (Reference category: Calm)

OR [95%CI]	p
0.150 [0.030, 0.758]	0.022
18.065 [2.393, 136.217]	0.005

Choice Set	Context	Choice Set*EL*Context	EL*Context	Choice Set*EL
0.097 [0.021, 0.452]	0.003	6.964 [0.891, 54.420]	0.064	0.004 [0.000, 0.080]

0.000 | 40.000 [5.027, 318.290] | 0.000 | 0.154 [0.033, 0.719] | 0.017

EL | 150 | 250 | 350 | 20 | 60

0.2 | 0.4 | 0.6 | 0.8 | 1.0

Choice Set*Context (Reference category: Small) | 1000

OR INTERACTION OF COMPROMISE EFFECTS IN DIFFERENT CONTEXTS AND EL SIZE

FIGURE 6 [Figure 6: see original paper]

Next, we performed a simple effects analysis. We conducted a binary logistic regression analysis of data related to clothes product choice in both small EL size and large EL size conditions, in which product selection was the dependent variable (1 = choose option B, 0 = choose option C), and the independent variables were the choice set (ABC or BCD), the context data type (excited or calm), and their interaction.

As shown in Figure 7 [Figure 7: see original paper], the main effect of context data types was significant for binary logistic regression under the large EL size conditions (Wald = 7.36, OR = 6.00, p = 0.007). As shown in Table 4 , the compromise effect produced by the exciting context data set was significant at the 0.001 level (the proportion of option B for clothes products in both BC options was 70% (14/20) and 16.7% (3/18) in the ABC and BCD conditions, respectively, with a compromise effect size of +53.3% (Z = 3.30, p < 0.001). The compromise effect produced by the calm context data set was not significant (the proportion of option B of clothing products in both BC options was 28.0% (7/25) and 29.4% (5/17) in the ABC and BCD conditions, respectively, with a compromise effect size of -1.40% (Z = -0.10, p = 0.46).

The results of the binary logistic regression in the small EL size condition are shown in Figure 8 [Figure 8: see original paper], where the main effect of the context data type was significant (Wald = 5.27, OR = 0.15, p = 0.02). As shown in Table 4, excited contextual data sets produce a reverse compromise effect (the proportion of option B for clothes products among the two BC options was 37.5% (6/16) and 62.5% (15/24) in the ABC and BCD conditions, respectively, with a compromise effect size of -25.0% (Z = -1.55, p = 0.06), and a significant compromise effect for the calm context data set (the proportion of option B for clothes products among the two BC options was 80.0% (12/15) and 38.1% (8/21) in the ABC and BCD conditions, respectively, with a compromise effect size of +41.9% (Z = 2.49, p = 0.006).

TABLE 4
COMPROMISE EFFECTS UNDER DIFFERENT CONTEXTS AND EL SIZE CONDITIONS

Options	Choice set	Large EL size	Small EL size
Excited	Excited	(0/20) (0/25) 38.5% (10/26) (10/25) (14/20) (3/23)	28.0% (7/25) 20.8% (5/24) 23.1% (6/26) 57.7% (15/26) (12/25) 34.8% (8/23) (6/20) 65.2% (15/23) 72.0% (18/25) 50.0% (12/24) 38.5% (10/26) 34.6% (9/26) (3/25) 56.5% (13/23) 21.7% (5/23) 29.2% (7/24) (2/26) (2/23)
Compromise effect (ABC vs. BCD)	+53.3%, Z = 3.30, p < 0.001 (14/20 vs. 3/18)	-1.4%, Z = -0.10, p = 0.46 (7/25 vs. 5/17)	-25.0%, Z = -1.55, p = 0.06 (6/16 vs. 15/24) +41.9%, Z = 2.49, p = 0.006 (12/15 vs. 8/21)

Note. Numbers in parentheses show the raw choice data and cell sizes.

BINARY LOGISTIC REGRESSION RESULTS FOR CONTEXT DATA IN LARGE EL SIZE
FIGURE 7 [Figure 7: see original paper]

BINARY LOGISTIC REGRESSION RESULTS FOR CONTEXTUAL DATA IN SMALL EL
FIGURE 8 [Figure 8: see original paper]

5.1 Summary

As shown in Table 1 and Table 2, the study used two properties of clothes products—style and fit—to alter participants' decision judgments in different selection sets by manipulating the EL size, Δ(EL_{extreme} - EL_{compromise}) = 7.07 - 4.71 = 2.36 and Δ(EL_{extreme} - EL_{compromise}) = 14.14 - 9.43 = 4.71. Combined with the data from Experiment 1, the results of Experiment 2 showed that contextual data played a significant role. In the condition of larger

EL size, excited context data enhanced the compromise effect (Δ(Experiment 2 compromise effect size - Experiment 1 compromise effect size) = +53.3% - 35.6% = +17.7% > 0), see Table 3 and Table 4; calm context data weakened the compromise effect (Δ(Experiment 2 compromise effect size - Experiment 1 compromise effect size) = -1.4% - 35.6% = -37% < 0), see Table 3 and Table 4. In the smaller EL size condition, the exciting context data weakened the compromise effect (Δ(Experiment 2 compromise effect size - Experiment 1 compromise effect size) = -25% - 8.8% = -33.8% < 0), see Table 3 and Table 4; and the calm context data enhanced the compromise effect (Δ(Experiment 2 compromise effect size - Experiment 1 compromise effect size) = +41.9% - 8.8% = +33.1% > 0), see Table 3 and Table 4, which is consistent with our hypothesis in terms of trend. Thus, Experiment 2 demonstrates the intrinsic relationship between the expected loss minimization theory and extremeness aversion theory.

In short, the smaller the gap in psychological expectation loss, the weaker the compromise effect; the larger the gap in psychological expectation loss, the stronger the compromise effect, indicating that aversion to extremeness underlies the compromise effect. Excited context data in the group with a higher psychological expectancy loss gap would play a reinforcing role in the encoding stage, thus weakening the compromise effect, and in the group with a higher psychological expectancy loss would play a referential role in the judgment stage, thus enhancing the compromise effect. Correspondingly, calm context data in the group with a higher psychological expectancy loss would play a reinforcing role in the encoding stage, thus enhancing the compromise effect, and in the group with a higher psychological expectancy loss would play a referential role in the judgment stage, thus weakening the compromise effect.

5.2 Implications and Contributions

The study suggests that consumers who are stimulated by music of a different nature may change their shopping decisions. We found that consumers are in different emotional states when stimulated by context data. If these emotional states correspond to compromise options and extreme options with the compromise effect, the corresponding context data will have different stages of action because consumers feel different psychological expected loss, and therefore the ultimate scale of the resulting compromise effects will change. Consistent with Kim et al. (2008) and Meyers-Levy et al. (2009), an assimilation effect occurred when the mental representation of the target product was ambiguous, which in this study is when the EL size was small, and a contrast effect occurred when the mental representation of the target product was clear, which in this study is when the EL size was large.

5.3 Avenues for Future Research

The most common potential dimensions of emotional experience are valence and arousal (Fontaine et al., 2013; Rubin & Talarico, 2009), which occur in almost all emotional patterns (Mehu & Scherer, 2015). In the current study, we focused on the aspect of arousal, so we tried to evoke as much of the participants' emotional states as possible to support neutral valence. Therefore, to prevent participants' past experiences from stimulating their diverse emotional potency, we chose niche pure music as our musical stimulus material. However, according to the theoretical ranking of emotion categories in terms of valence, arousal, and power used in the Twelve Emotions in the Geneva Multimodal Emotion Portrayal (GEMEP) corpus (Bänziger et al., 2010), it can be seen that for the same positive emotions, pride and interest are high arousal and low arousal, while despair and sadness are high arousal and low arousal for the same negative emotions. Previously, Russell et al. argued that whether pleasure is high or low arousal depends on culture (Russell et al., 1989). In short, consumers may be familiar with the music they hear when they make real shopping decisions, and once they awaken memories from a long time ago, there remains a different valence to be seen in how these past experiences will affect their choices. Moreover, classical music has been shown to enhance pleasure, while popular styles of music enhance euphoria (Kellaris & Kent, 1993). Could it be that different musical stimuli from different eras have had different effects?

In addition to the way they receive external stimuli, their ability to perceive, and the regions of the brain that process information, there are many differences between different senses. During pregnancy, for example, the senses develop in the order of touch, smell, taste, hearing, and ultimately sight, with loss of sight, hearing, smell and taste occurring earlier and faster than touch (Krishna, 2012). Many past studies have examined the strong effects of different senses on consumer behavior. Touching, for example, can affect consumers' emotions. If shoppers are exposed to the item earlier, other shoppers are less likely to like it and less likely to buy it (Argo et al., 2006). More interestingly, some studies on consumer behavior have reported interactions across sensory modalities, including touch and taste (Krishna & Ahluwalia, 2008), vision and taste (Hoegg & Alba, 2007), and smell and touch (Krishna et al., 2010), among others. One of the limitations of the present study also lies here—we only explored the participants' responses to a single auditory stimulus and did not consider the senses together. It is important to understand that in a rich external environment, consumers act like information receivers, receiving a tidal wave of information from all directions, which is swept into their eyes, nose, tongue, and other senses by colors, smells, tastes, etc., and is eventually integrated by the brain. Would the results be different because of differences in perception of sight, smell, taste, touch, hearing, and the different messages received by each? We hope that future studies will explore these possibilities.

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Note: Figure translations are in progress. See original paper for figures.