

# Integrated Theoretical Model of Smoking-Consumer Emotions and Research Outlook

Jiayi Du, PhD

Xinkang Chen, Professor

Jiayi Du, PhD in Marketing, College of Business, Shanghai University of Finance and Economics, Shanghai, China and Lecturer in International Event Management Shanghai, Tourism and Event Management School, Shanghai University of International Business and Economics, Shanghai, China. Xinkang Chen, Professor in Marketing, College of Business, Shanghai University of Finance and Economics, Shanghai, China. Correspondence author: Jiayi Du; [dodo.jiayi@suibe.edu.cn](mailto:dodo.jiayi@suibe.edu.cn)

**Abstract: Objectives:** Research on smoking-consumer emotions attracts increasing attention. Based on the literature review and analysis, this paper recognizes different definitions, categorizations, measurements of consumer emotions. Then the paper identifies the antecedent variables, moderating variables and outcome variables of consumer emotion and relevant emotion theories to explain the relationship and proposes an integrated theoretical model of consumer emotions. Finally, this paper talks about the future studies of consumer emotions on four aspects. This paper offers insights on the research of smoking-consumer emotions, theoretically and practically.

**Key words:** integrated theoretical model; consumer emotions; emotion categorizations; emotion measurement

**Tob Regul Sci.**<sup>TM</sup> 2021;7(4):251-263

**DOI:** [doi.org/10.18001/TRS.7.4.2](https://doi.org/10.18001/TRS.7.4.2)

## 1. Introduction

The research field of smoking-consumer emotion is relatively new. Fretchling JA et al. demonstrates that current research of tobacco regulatory activities should expand to overall tobacco knowledge.<sup>1</sup>

It is well known that smoking is danger and all societies encourage cigarette smokers to quit, but still a significant portion of people smoke. Psychology plays a unique position in the smoking cessation attempt and negative emotions such as depression and anxiety are highly related to smoking consumers<sup>2</sup>. A number of researchers focus on the link between smoking and consumer emotions. It is unclear the extent to which consumer

emotions relate to smoking. Although current research articles have done extant review on emotion-smoking comorbidity, but the literature is relatively fragmented.

This study first explains the connotation, categorization methods, and measurement of consumer emotions, and then summarizes the antecedent variables, moderating variables, and outcome variables related to consumer emotions, sorts through the relevant theories that explain the relationship between these variables, constructs the integrated theoretical model for consumer emotions, and finally discusses the role of consumer emotions in four future research topics in the consumer behavior field.

This paper makes great contributions to the future research of consumer emotions.

Firstly, this paper clarifies the definitions of consumer emotions and points out the dispute behind different connotations. Secondly, this paper summarizes theories of consumer emotion classification and their applications. Thirdly, this paper proposes an integrated theoretical model of consumer emotion based on the relevant theories of consumer emotions. Finally, this paper discusses the future topics of consumer emotions scholars can focus on.

There is no consensus among the researchers regarding the definition of emotion, which is used to express different meanings and functions. Izard defined emotion as part of a human's personality system, incorporating facial expression, physiological arousal, and subjective experience.<sup>3</sup> Plutchik regarded emotion as the evaluative cognition and behavioral patterns of individuals when stimulated by the outside world.<sup>4</sup> Ortony et al. believed that emotion is emotional response with effective pricings, including from happiness to unhappiness, and from positivity to negativity.<sup>5</sup> Russell et al. pointed out that emotions are fragments of an individual's perception of his or her own feelings.<sup>6,7</sup> However, these definitions have all ignored the role of society and culture. From the perspective of sociology, Turner et al. pointed out that social structure, cognitive evaluation, and physiology jointly determine emotions, and individuals can have varied ways of expressing emotions against different cultural and social backgrounds.<sup>8</sup> However, some scholars have also pointed out that many emotions are cross-cultural, and not every emotion is socially constructed.

Regarding the various definitions, some define it as a physiological response developed through human evolution, some believe that emotion is the result of social and cultural constructs, some emphasize physiological mechanisms such as facial expressions, and some believe that emotions require cognition to be produced in humans. Researchers can investigate consumers' emotional connotation based on their

research context, but they should pay attention to the following points when defining the connotations. First, emotion should include physiological awakening, subjective experience, and behavioral responses. Second, emotion is the emotional response with emotion valence. Third, in the field of smoking consumers, the definition of emotion should take social and cultural constructs into consideration.<sup>8</sup>

Currently, emotion is mainly classified into two major models (Table 1), basic emotion orientation and the dimensional orientation.<sup>9</sup> The basic emotion model categorizes emotions into certain limited and independent "basic emotions." This model originates from Darwin's evolution theory in which Darwin proposed that emotions are adaptive responses to the outside world and are preserved in evolution, and each basic emotion has its own physiological mechanism. Different scholars give disparate definitions of basic emotions.

Ekman conducted an intercultural study on facial expressions, and came up with six basic emotions: surprise, disgust, happiness, fear, anger, and grief.<sup>10</sup> The basic emotions proposed by those scholars have hugely impacted the study of consumer emotions. The differentiation emotion scale (DES) by Izard includes four additional basic emotions to Ekman's model of four, which are guilt, contempt, shame, and interest.<sup>3</sup> A later version of DES, the DES-II scale, is widely used to measure consumer emotions. The emotional mood rating scale in Plutchik defines eight basic consumer emotions including fear, anger, joy, sadness, acceptance, disgust, expectation, and surprise.<sup>4</sup> The consumer emotion scale (CES) in Richins contains the emotions that consumers may produce in various situations.

Le Guoan et al. consider the different perspectives of scholars on this issue. Some scholars' definition of basic emotions stems from a physiological perspective, while others believe that the number of emotions has no upper limit from the psychological perspective.<sup>9</sup> This is a dispute between

physiology and psychology. The basic emotion model sees compound emotions as either mixtures of basic emotions, or the result of the interactions between basic emotions and cognition. For example, disappointment is constituted by surprise and sadness, and optimism by expectation and happiness. Leventhal et al. proposed a framework of three smoking-consumer emotions, including decreasing interest in response to rewarding, being sensitive to anxiety and tolerance of distress.<sup>2</sup>

The basic emotional model holds that emotions are independent of each other. However, many emotions are highly correlated, for example, fear and anger are positively correlated, as are anxiety and depression. The dimensional model regards emotions as a spectrum, a fuzzy continuum where specific emotions are hardly distinguishable. Mehrabian et al. proposed the arousal-pleasure-dominance model that is based on the three semantics of emotion (value, vitality, and power).<sup>11</sup> The measurement of pleasure runs from “pleasant” to “unpleasant.” Arousal refers to the degree of activation of an individual’s physical and psychological alertness and dominance refers to the degree of control an individual exerts on their external environment or on other people. These three dimensions are inter-independent and can be used either simultaneously or separately. Russell proposed a circumplex model of emotions, with pleasure and arousal as the horizontal and vertical axes, and each emotion evenly distributed over the ring.<sup>6</sup> The circumplex model assumes that all emotions have overlapping neurophysiological mechanisms, and that emotions are combinations of varied valence and levels of arousal. For example, happiness consists of high valence of pleasure and moderate arousal, while fear consists of high arousal and low valence.<sup>7</sup> The dimensional model foregrounds the valence and level of arousal of emotions. Low-arousal emotions have a low impact on consumers and high-arousal positive

emotions affect consumers more than low-arousal positive emotions. Wirtz et al. believe that the dimensional model is more convincing than the basic emotions model.<sup>12</sup> For example, background music with slow rhythm reduces individual emotional arousal and increases pleasure, whereas crowded environments reduce individual emotional pleasure and increase arousal.

Watson et al. proposed a ring model of positive-negative affect and compiled PANAS, the positive-negative affect scale, on its basis. Positive emotions equal pleasure plus high arousal, and negative emotions equal displeasure plus high arousal.<sup>13</sup> The PANAS scale, which has been found to have good measurability, is used by many researchers. The representative index equals to the sum of consumers’ positive and negative emotions. Nevertheless, the biggest deficiency of this scale is that the nuances of consumer emotions are missing. The differences between emotions with the same valence become indistinguishable, even though different emotions with the same valence would trigger different consumer behaviors. For example, when a company fails to provide services, some consumers feel frustrated, and some feel angry. Frustrated consumers are more passive and might not take action, but they will stop consumption. Angry consumers will take action, such as complaining and venting to others. Therefore, the basic emotion model is more effective in the prediction of consumer behavior. Service providers are more concerned with whether consumers are angry or frustrated, rather than their status of pleasure and their arousal level.

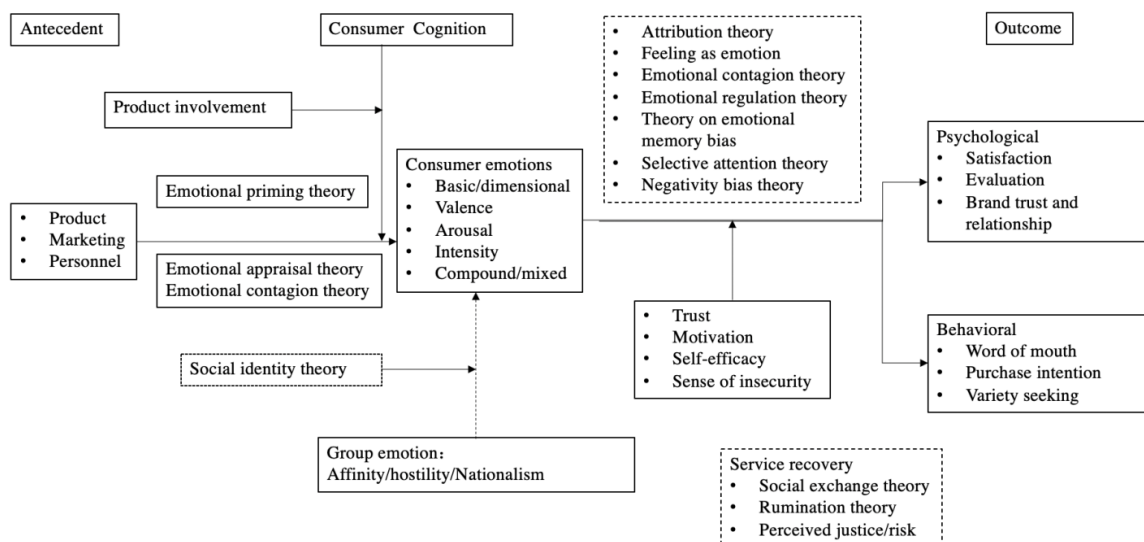
Table 1		
Emotion Categorization		
Emotion Orientation	Findings	Scholars
Basic Emotion	Six Basic Emotions	Ekman
	Differentiation Emotion Scale (DES)	Izard
	Emotional Mood Rating Scale	Plutchik
	Consumer Emotion Scale (CES)	Richins
	Arousal-Pleasure-Dominance Model	Mehrabian et al.
Dimensional Emotion	Circumplex Model of Emotions	Russell
	Ring Model of Positive-Negative Affect	Watson et al.

## 2. Integrated Theoretical Model

This paper considers related research on consumer emotion and extracts an integrated theoretical model with consumer emotion as the core, based on the environmental stimuli-organism-response behavior model. This study summarizes the

antecedent variables, moderating variables, and outcome variables of consumer emotion, and proposes an integrated theoretical emotion model that elaborates on the relationship of these related variables (please see Figure 1). Based on this model, it seeks to explore the future possibilities of consumer emotions in the marketing field.

Figure 1 The Integrated Theoretical Model of Consumer Emotion Antecedent Variables



The antecedent variables of consumer emotion are the environmental stimulus “S” in the S-O-R model. Consumers directly absorb the emotion contained in the

environmental stimulus or resonate with the emotion through their own understanding and complex processing.<sup>15</sup> The emotional priming theory believes that exposing

consumers to emotion-containing stimulus including text, pictures, music, and smells can trigger consumers' emotional priming effect.<sup>16</sup> Various research results in the marketing field have confirmed that the rich and fickle emotional stimulus in the marketing environment are the main factors that affect consumer emotions. This article summarizes the environmental stimulus of consumer emotion into three categories: product factors, marketing factors and personal factors.

Consumers' judgment as to whether a product is hedonic or practical will affect emotions. He et al. point out how the three dimensions of product elements (functional dimension, symbolic dimension, aesthetic dimension) significantly affect consumer emotions, with the symbolic and aesthetic dimensions exerting a greater impact on hedonic products.<sup>17</sup> The provision of tangible facilities and intangible atmosphere, such as display and placement, store layout, background music, color, and smell, etc., affect consumer emotion, and the convenience of online stores can increase consumers' positive emotions.<sup>18</sup> The application of virtual reality (VR) technologies, such as "virtual test driving" and "virtual house viewing," has improved the shopping experience of consumers and increased their pleasure.<sup>19</sup>

The presentation of marketing information and the environment will affect consumer emotion. In the past, marketing information was delivered to consumers mainly through advertisements, discount coupons, gifts, etc. Researchers have found that consumers are more likely to notice advertisements that contain highly emotional information and to pay more attention to sentences or pictures containing negative emotions.<sup>20</sup> Some scholars have suggested that too much marketing information will increase the negative emotions of consumers, as it can cause confusion and an "overwhelmed" state of mind in consumers due to their failure to grasp the relevant information. Moreover, consumer confusion will increase negative

emotions and lead to a negative reputation.<sup>21</sup> A crucial purpose of corporate marketing is to build the brand image. A good brand image can offset some negative emotions, especially in the case of a business scandal, which can easily trigger consumers' moral emotions, for example, negative and highly aroused emotions related to other people's unfortunate encounters.<sup>22</sup>

The emotional infection theory describes the process whereby consumers affect their own emotions with their perceptions of the emotional changes of others, including service personnel and other customers. Grandey et al. point out that in a service situation, the emotional display of service personnel will affect consumer emotions.<sup>23</sup> The emotional display here refers to the person's true feelings, rather than their display of emotions for professional purposes. Although largely unaware, consumers tend to imitate the emotional expression of the personnel, and the friendliness and enthusiasm of the latter can positively infect consumers. Meanwhile, the negative emotions of personnel are more easily captured by consumers, and negative emotion infection also exists. If consumers experience positive and negative emotional infection from service personnel, consumers will go through continuous emotional changes.<sup>24</sup>

## 2.1 Consumer perception

Controversy persists in academia as to whether emotions can be generated independently of cognition. Descartes' dualism of mind and body omits the cognitive element in emotions and defines emotion as man's understanding of the changes in his own body. His supporters reduce emotions to physical reactions. For example, Hume believes that the basic feelings of emotion are pain and happiness. The prevalence of dualism leads to the perception of emotion and cognition as inter-independent. James wrote in "Principles of Psychology" that "emotion is the perception of the changes in the body."<sup>25</sup> Danish scholar Lange believes emotions to

be the result of visceral activity and blood vessel changes. These two scholars collaborated to publish the famous peripheral theory of emotion, which believes that each emotion has a unique physiological response and intensity. Ekman's facial feedback theory supports this theory.<sup>10</sup> The peripheral theory of emotion completely excludes cognition from emotion, and largely bases the measurement of emotion on the measurement of physiological functions, such as heartbeat, blood pressure, and pulse, etc. The study of emotions thus becomes a study of physiology. Zajonc et al. proposed the exposure effect, that if an individual is repeatedly exposed to the same stimulus, they will become familiar with that stimulus and develop a partiality without cognitive evaluation.<sup>26</sup> As an example, some advertisements repeatedly emphasize brand names in order to increase consumers' familiarity with the brand and boost their positive emotions. Izard believes that cognition is, in theory, a reasonable and safe emotional mechanism, but not the only process of emotion.<sup>3</sup> Turner et al. pointed out that emotion is the stimulation of the subcortex to the cortex, but not all emotions reach the neocortex consciously, as some are unconscious.<sup>8</sup> Faullent et al. think that under certain sudden stimuli, consumers tend to experience emotions first before developing cognitive evaluations, such as the emotion of fear when mountain-climbing.<sup>27</sup> Ledoux proved that fear can be an automatic and unconscious response to stimulation by the use of modern medical equipment.<sup>28</sup>

After the initiation of the American cognitive psychology revolution, psychologists began to realize that people are active individuals, and they put forward the appraisal theory of emotion.<sup>29</sup> The appraisal theory of emotion regards the origins of consumer emotions as consumers' evaluation of environmental stimuli. The cognitive process of evaluation is the main factor that produces emotions, and external stimuli are the information source of

consumer emotions. The appraisal theory of emotion does not negate the physiological changes accompanying emotions, but places evaluation cognition prior to such changes. Contrary to the peripheral theory of emotion, people are not angry because of trembling, but tremble because they are angry. Individuals must have basic beliefs and knowledge of the world in order to judge and evaluate the specific environment they are in and to generate emotions. In the same scenario, different individuals with different evaluations have different emotions. The core of emotion is behavior, which indicates the activation of an individual's emotional cognitive state. When we see a snake, we sense danger, feel fear, and choose to escape. However, if infants and young children do not have basic knowledge of snakes, they will not feel these emotions. Oliver believes that in the majority of consumption scenarios, consumers have cognition prior to emotions.<sup>30</sup> However, in some cases, emotions come before cognition, which then generates more emotions. A common phenomenon in real life is that consumers' behavior is not so much a result of cool thoughts but a passionate head, directly driven by emotions. For example, during the promotion season, merchants often use various methods to stimulate the emotions of female consumers and lead them to buy many products that they do not really need. In this scenario of consumption, the physical environment directly stimulates emotions. However, if stimulus overwhelms the consumption scenario, consumers then need to form an overall cognition of the scene before having emotions.

Consumers' cognitive ability regulates environmental stimulus and consumer emotions. Consumers with high cognitive abilities are more willing to proactively process external information, especially in the face of a complex and changing environment and to make more rational responses. Consumers' cognitive ability can also regulate emotional intensity.<sup>31</sup> The appraisal theory of emotion has two stages, namely initial evaluation and re-evaluation.

In the re-evaluation stage, consumers will reprocess the information source and evaluate it, as well as evaluate and control their own emotional reactions. When consumers are overwhelmed by more information than they can handle, cognitive loss occurs and consumers need to spend extra energy to make decisions, which induces negative emotions like regret, anxiety, disappointment, etc. Consumers' cognitive abilities are limited, yet their expectations are increased by a large number of options. They will thus experience deepened negative emotions because they are at a loss as to what to choose, or they feel that their choices will have negative effects. Tu et al. pointed out that in the re-evaluation stage, consumers will rethink the products and services they are about to buy and measure the relevance between the product and their demand and preference, i.e., product involvement. Their research finds that product involvement has a moderating effect on consumer cognition and emotions.<sup>20</sup>

## 2.2 Outcome variables

It can be seen from the previous discussion that the outcomes as a result of consumer emotions can be both psychological and behavioral, and that the two types are interconnected.

Almost all existing studies believe that emotions can affect satisfaction, but the findings are far from consistent regarding their relationship. Earlier researchers contend that the effect of emotions on satisfaction is conditioned upon emotional valence, that is, positive emotions can improve satisfaction while negative emotions can decrease it. However, emotions are very complicated. The attribution theory of emotion suggests that the impact of negative emotions on satisfaction is more likely to be influenced by the causes of such emotions. If consumers attribute their negative emotions to service providers, then such emotions would decrease their satisfaction. However, if they attribute the emotions to themselves or the environment, then there could be a

positive relationship between negative emotions and satisfaction. Aurier et al. discovered that in a repeated service transaction scenario, when two consumers are both upset, their satisfaction does not necessarily decrease, as the enterprises can provide proper services as remedies for satisfaction.<sup>32</sup>

The effect of emotions on satisfaction can also be moderated by other factors. For products with the possibility of repeated service transactions, consumers will continuously acquire information to adjust their expectations.<sup>33</sup> At some stage, their emotions would affect their expectations of services at the next stage. Positive emotions can lead to more positive events, while in respect of negative emotions, consumers would be more likely to attribute them to certain factors. Once the attribution mechanism is formed, the individuals would apply the same attribution method to future events. Meanwhile, emotions would also affect the perceived service quality that they will receive. Even if no changes have been made to the actual services, their perceived quality of services would still change. If consumers do not attribute their negative emotions to the service providers, then their emotions would not impact their perceived service quality, and the level of satisfaction may not decline. Before their consumption, consumers may expect to experience certain detailed emotions such as enjoyment, fear, upset, and so forth, which is termed anticipated emotions. Regardless of the experiential emotions of the consumers, as long as such emotions are positively related to their anticipated emotions, then satisfaction will increase. On the contrary, if consumers do not anticipate any emotions to experience, and they do experience intense emotions, then satisfaction will decrease regardless of whether the emotions are negative or positive. For instance, in adventure tourism, thrill is the core emotion that consumers are after. In this case, enterprises should understand the adventure abilities of consumers and provide them with a certain level of adventurous

experience, but the adventure should not be so overly challenging that consumers will be scared.

Koelemeijer et al. distinguish between passive and goal-directed consumer emotions. In respect of passive emotions, such emotions are not the main goal of consumers and are experienced passively.<sup>34</sup> For example, consumers feel happy because of the nice environment when shopping. Thus, positive emotions can raise satisfaction, while negative emotions would undermine it. However, goal-directed emotions are what consumers aim to pursue. Therefore, satisfaction does not necessarily have to come from positive emotions. This viewpoint stresses that specific contexts and products for consumption should be considered in the academic discussion of the relationship between consumer emotions and satisfaction.

Existing studies have found that emotions play a key role in consumers' evaluation of products, services, and life satisfaction. The feeling as information hypothesis specifies that consumers will use their emotions to evaluate an object. According to Isen et al., when consumers have positive emotions, their evaluation of the cars and televisions purchased is higher than that of consumers with neutral or negative emotions.<sup>35</sup> As positive emotions can arouse intensive cognitive activities, compared to individuals with negative emotions, those feeling joyful and satisfied tend to be more objective in describing the details of the physical environment, with stronger cognition and judgment abilities. Forgas proposes that under two patterns of information processing, that is, heuristic processing and substantive processing, emotions can greatly affect individuals' evaluation.<sup>36</sup> The former pattern means that individuals believe their cognitive resources are limited and the objects to be evaluated are rather simple. For the latter, the objects to be evaluated are relatively novel and the individuals believe that they have a number of cognitive resources. Forgas terms these

two information processing models as high infusion by affect.

Brand trust refers to consumers' high expectation of and confidence in the image and capabilities of an enterprise. A majority of studies agree that negative emotions can reduce consumer trust and that some negative emotions such as anger can more easily affect it than others like sadness. Brand relationship involves brand trust and commitment. In respect of enterprises with good brand relations with consumers, consumers will pay more attention to the way the enterprises convey information and consumers' attitudes towards products can often be irrational. It is commonly believed that negative emotions can damage the relationships between consumers and brands. However, some research also shows a tight connection between consumer emotions and their social statuses. When companies encounter certain crises that lead to a disconnect between brand image and consumer status, consumers may argue in favor of the brands because of the induced feeling of shame, so that the brand relationship could even improve.<sup>37</sup>

The theory on emotional memory bias stipulates that consumers could have biases in their memories of emotions and that high-arousal emotions are more easily memorized and enhanced. Thus, when it comes to repairing brand relationships with consumers with different persuasion strategies, it is advisable to consider the intensity and types of negative emotions that consumers have.

Word-of-mouth is the exchange among consumers of information regarding companies, products, and services without any commercial purpose, and it is highly authentic and influential. According to theory of emotion regulation, after experiencing emotions, consumers need to regulate their emotions to achieve a balance. Word-of-mouth communication is a key approach for consumers to manage their emotions, which can be realized through comments, recommendations to others, active consumption behavior, and so forth.



Active consumption behavior means that consumers make the most use of the functions of the products and services they purchased. Negative word-of-mouth communication, however, mainly involves negative comments, complaints, and discouragement to make purchases. The degree of consumers' emotional arousal is subject to the influence of relevant features of the source of information. The higher the level of emotional arousal, the more willing the consumers are to communicate information. Some researchers highlight the fact that not all negative emotions can negatively impact word-of-mouth communication. For instance, consumer guilt can be both facilitative and prohibitive. The former type of guilt will increase purchase behavior and positive word-of-mouth communication, while the latter will hinder their communication.

Internet technology has made it possible for the creation and distribution of information for consumers, so that word-of-mouth communication among online consumers can be faster and more wide-reaching. Specifically, consumers can share with and recommend to one another certain products and services, the forms of word-of-mouth communication become diverse (with photos and videos attached and so on), with a broad audience (there is no need for communicators and receptors to know each other), and are more emotion-driven.<sup>38</sup> Some researchers divide online word-of-mouth communication into instant and continuous communication and emphasize that consumers can now log into virtual communities to post their comments any time via their mobile phones. Salehan et al. discovered that online comments with positive emotions tend to acquire more attention and that the length and timing of the comments also affects the speed of communication.<sup>39</sup> Compared to information released by companies, word-of-mouth communication on the part of users on social media can have a better effect in respect of the same content. Furthermore, some scholars indicate that friends are more

willing to share information with positive emotions while people on public platforms are more likely to disseminate news with negative emotions.<sup>40</sup>

The majority of researchers would agree that positive emotions add to purchase intentions and that negative emotions reduce them. Meanwhile, a number of scholars have concentrated on studying the influence of emotions on consumer purchase intentions in scenarios of service recovery. Service recovery means the specific measures taken by companies to remedy the loss of consumers in scenarios of service failure. In this regard, many researchers examined the influence of service recovery on consumer psychological states and behaviors from multiple perspectives, including service recovery, recovery resources, recovery timing, and recovery strategies. Based on the social exchange theory, consumers would ask for material and emotional compensations. Compared to offering recovery services, soothing consumer emotions tends to be more important. This is because emotions help consumers adjust the pressure they feel when they complain about services. If consumer emotions can be properly controlled, then those consumers will remain loyal even when they complain. In the course of remedies, consumers' perceived justice and their emotions would influence each other, and perceived justice can affect consumer behavior via the mediation of emotions.

Variety seeking behavior means that although consumers like the products they currently own, they are also likely to try new products or switch between new and old products and services.<sup>41</sup> There can be multiple factors affecting consumers' variety seeking behavior, of which emotions are an essential one.<sup>42</sup> Nevertheless, no consensus has been reached among scholars regarding the effect of emotional valence on variety seeking behavior. Some scholars believe that negative emotions promote consumers' desire for change, thus leading to their preference for diversity.<sup>43</sup>

### 3. Future research

Existing literature has revealed that remarkable theoretical and empirical contributions have been made by scholars in the field of consumer emotions, which mainly focuses on categorization, measurement, and variables related to consumer emotions. There is more on consumer emotions for us to explore and we provide some suggestions for further research.

Currently, the mainstream approach to measure emotions is to use quantitative scales, and their reliance on consumers' memories means that only emotions of a certain moment can be captured. However, consumer emotions are constantly changing. If companies can actively offer remedies and appease consumers, then consumers would not only feel guilty about their previous negative emotions and improper behavior, but also have higher loyalty. The advances in cognitive neuroscience have enabled researchers to monitor changes in consumer emotions and capture facial expressions and nervous systems via eye tracking, MIR (Magnetic Resonance Imaging) and other instruments. Furthermore, accumulation and mining of big data in the Internet era also facilitate the tracing of consumer emotions. Therefore, future research should consider in-depth understanding of the dynamic mechanisms of and factors for changes in consumer emotions.

Secondly, there should be more in-depth research on specific emotions. There are various types of specific emotions that will have differential effects on consumer behavior. Retailers have gradually grasped that certain consumer emotions can strengthen purchase intention, but they often fail to make use of them because of their partial understanding of emotions. For example, companies would like to promote sales by leveraging on consumers' guilt, as the level of guilt positively correlates with intention of compensatory consumption.

Additionally, in the studies of certain consumer emotions, a common challenge

for researchers is that it is often difficult to determine whether the change in consumer behavior is a result of the studied emotion or other emotions. A number of consumers' negative emotions are very similar, such as contempt, guilt, disgust, anger, and shame. It remains to be investigated systematically whether they would have different effects on consumer behavior. Coleman et al. compared the influence of fear, anger, and sadness on consumer behavior.<sup>45</sup> The current research process concentrates on the determinants of mixed emotions, including personality traits, cognitive abilities, and contextual factors. Nevertheless, research on the effect of mixed emotions on consumer satisfaction and behavioral intentions is still deficient and should be expanded in the future.

The rise of social media has facilitated emotion contagion within consumer groups, especially for negative emotions. According to the social identity theory, individuals categorize themselves in a certain social group. Whether individuals identify with a group or not would lead to positive or negative emotions and the ensuing tendencies. In particular, the homeland or other countries could also be defined as social groups. However, little attention has been paid to the contagion from groups to individuals, such as whether the size and characteristics of a group would affect emotion contagion.

It is more common to see that individual emotions become contagious in a group via online word-of-mouth communication. When consumers describe their feelings and emotions, other consumers become susceptible to the influence of such emotions, and social media has multiplied the effect of emotion contagion. The popularity of Key Opinion Leaders (KOL) in the Internet era has also added to the power of communication of individual emotions. However, there is insufficient research on the two paths of emotion contagion, which can be a possible direction for future studies.

The Internet serves as a new variable for consumer studies, and research on online consumer emotions is worth exploring. Attention can be paid to the negative emotions induced in the course of online shopping, as consumers' purchase decisions are more likely to be influenced by negative word-of-mouth communication online. In the Internet era of complex online information, with information overload, high similarity, and ambiguity, consumers can instead have negative emotions such as confusion. Therefore, online businesses can offer recommended products and default options to save decision-making time for consumers.

Unlike traditional word-of-mouth communication, in the online setting, companies are able to intervene in the process by actively responding to consumers' comments, likes, and complaints and forming an interactive relationship with consumers. Is it possible that such active interactions can remedy the effect of negative word-of-mouth communication by consumers, or bring more positive emotions to consumers when they communicate positive information by word-of-mouth? In addition, online word-of-mouth information can be repeatedly shared and forwarded to create a ripple effect. In this regard, can consumer emotions "infect" other consumers via online word-of-mouth information and prompt further online communication by consumers? How will such repeated communication affect consumer behavior? What could be the mechanism behind it? In the course of repeated communication, will emotions change, and what factors can affect emotions? The mechanism of emotional contagion merits further research. Research into the relationship between consumer emotions and cigarette smoking has focused on anxiety and depression. There is very little study of integrated working process on smoking-consumers' emotions. In order to better apply tobacco regulation, it must work with researchers to develop a tobacco-specific standard to risk

assessment involving the understanding of smoking consumer emotion.<sup>46</sup>

## Author Declaration

The authors declare that this research is not funded by any organization related to tobacco production.

## References

1. Frechtling JA, Dunderdale T, Price S, et al. Establishing a research base to inform tobacco regulation: overview. *Tobacco Regulatory Science*. 2021;7(2):144-154.
2. doi: <https://doi.org/10.18001/TRS.7.2.6>
3. Leventhal AM, Zvolensky MJ. Anxiety, depression, and cigarette smoking: a transdiagnostic vulnerability framework to understanding emotion-smoking comorbidity. *Psychological Bulletin*. 2015;141(1):176.
4. Izard CE. Basic emotions, natural kinds, emotion schemas, and a new paradigm. *Perspectives on Psychological Science*. 2007; 2(3): 260.
5. Plutchik A. Psycho-evolutionary theory of emotion. *Social Science Information*. 1980; 21(4-5): 529-553.
6. Ortony A, Clore GL, Collins A. The cognitive structure of emotions. *Contemporary Sociology*. 1990;18(6): 2147-2153.
7. Russell A. A circumplex model of affect. *Journal of Personality and Social Psychology*. 1980;39(6): 1161-1178.
8. Russell J A, Barrett L F. Core affect, prototypical emotional episodes, and other things called emotion: dissecting the elephant. *Journal of Personality & Social Psychology*. 1999;76(5): 805-19.
9. Turner H, Stets E. *Handbook of the sociology of emotions*. Berlin: Springer Verlag, 2007.
10. Le G, Dong YH. On the categorical and dimensional approaches of theories of the basic structure of emotions. *Nankai Journal*. 2013; (1):140-150.
11. Ekman P. Facial Expression and Emotion. *American Psychologist*. 1993;48(4): 384.
12. Mehrabian A. Pleasure-arousal-dominance. *Current Psychology*. 1996;14(4): 261-292.
13. Wirtz J, Bateson JG. Consumer satisfaction with services. *Journal of Business Research*. 1999; 44(1): 55-66.
14. Watson D, Tellegen A. Toward a consensual structure of mood. *Psychological Bulletin*. 1985; 98(2): 219-235.
15. Laros FM, Steenkamp M. Emotions in consumer behavior: a hierarchical approach.

- Journal of Business Research. 2005; 58(10): 1437-1445.
16. Cao Y, Wang L. Processing of emotional information in written language. *Chinese Science Bulletin*. 2018; (2): 148-163.
17. Li H, Liu FF. A literature review and prospects of sharing of marketing information. *Foreign Economics & Management*. 2018; 40(9): 143-152.
18. He AZ, Tang JP. The Research of joint mediation mechanism about product design on referral intention. *Soft Science*. 2017; 31(11): 102-105.
19. Yang Q, Zhuang Y. Study of the impact of service convenience on customer repurchase intention. *Journal of Dalian University of Technology (Social Sciences)*. 2014; 35(4): 39-43.
20. Dad A M, Davis P B, Rehman AA. 3D service-scape model: atmospheric qualities of virtual reality retailing. *International Journal of Advanced Computer Science and Applications*. 2016; 7(2): 25-38.
21. Du JG, Li DH, Li XN. A literature review of consumer attention and prospects. *Foreign Economics & Management*. 2019; 41(1): 114-126.
22. Tu HW, Wu SD. The effect of consumer confusion on negative word of mouth in the tourism domain based on emotion-focused coping perspective. *Tourism Tribune*. 2019; 34(7): 73-84.
23. Gu HD, Yuan S, Lou TY. Emotions and attributions: corporate scandals and consumer response model. *Consumer Economics*. 2019; 35(2): 71-79.
24. Grandey A A, Goldberg L S, Pugh S D. Why and when do stores with satisfied employees have satisfied customers?. *Journal of Service Research*. 2011; 14(4): 397-409.
25. Du JG, Fan XC. The dynamic influencing mechanism of emotion contagion on negative emotions on services scenarios. *Acta Psychologica Sinica*. 2009; (4): 346-356.
26. James W. The principles of psychology. US: Harvard University Press, 1981.
27. Zajonc RB, Markus H. Must all affect be mediated by cognition?. *Journal of Consumer Research*. 1985; 12(3): 363-364.
28. Faullant R, Matzler K, Mooradian TA. Personality, basic emotions, and satisfaction. *Tourism Management*. 2011; 32(6): 1423-1430.
29. Ledoux JE. Emotion circuits in the brain. *Annual Review of Neuroscience*. 2000; 23(23): 155-184.
30. Frijda N H. The emotions. Cambridge, UK: Cambridge University Press, 1986.
31. Oliver R L, Rust R T, Varki S. Customer delight: foundations, findings, and managerial insight. *Journal of Retailing*. 1997; 73(3): 311-336.
32. Tice D M, Bratslavsky E. Giving in to feel good: the place of emotion regulation in the context of general self-control. *Psychological Inquiry*. 2000; 11(3): 149-159.
33. Aurier P, Guintcheva G. Using affect-expectations theory to explain the direction of the impacts of experiential emotions on satisfaction. *Psychology & Marketing*. 2014; 31(10): 900-913.
34. Dubé L, Menon K. Multiple roles of consumption emotions in post-purchase satisfaction with extended service transactions. *International Journal of Service Industry Management*. 2000; 11(3): 287-304.
35. Koelemeijer K, Prevo O, Pieters R, et al. An investigation into hierarchies-of-effects. Presented at Workshop on Quality Management in Services V, Tilburg, The Netherlands, Organized by Tilburg University and European Institute for Advanced Studies in Management, 1995.
36. Isen A M, Daubman K A, Nowicki G P. Positive affect facilitates creative problem solving. *Journal of Personality & Social Psychology*. 1987, 52(6): 1122-1131.
37. Forgas J P. Mood and judgment: the affect infusion model. *Psychological Bulletin*. 1995; 117(1): 39-66.
38. Johnson A R, Matear M, Thomson M. A coal in the heart: self-relevance as a post-exit predictor of consumer anti-brand actions. *Journal of Consumer Research*. 2011;38(1): 108-125.
39. Tucker CE. The reach and persuasiveness of viral video ads. *Marketing Science*. 2015; 34(2): 281-296.
40. Salehan M, Dan J K. Predicting the performance of online consumer reviews. *Decision Support Systems*. 2015; 81(C):30-40.
41. Hanson L K, Arvidsson A, Nielsen F A, et al. Good friends, bad news – affect and virality in Twitter. Park J J, Yang L T, lee C. Future information technology. Berlin, Heidelberg: Springer, 2011.
42. Koschate-Fischer N, Hoyer W D, Stokburger-Sauer N E, et al. Do life events always lead to change in purchase? The mediating role of change in consumer innovativeness, the variety seeking tendency, and price consciousness. *Journal of the Academy of Marketing Science*. 2018; 46(3): 516-536.
43. Roehm H A, Roehm M L. Revisiting the effect of positive mood on variety seeking. *Journal of consumer research*. 2005; (2): 330-336.
44. Chuang S C, Kung C Y, Sun Y C. The effects of emotion on variety-seeking behavior. *Social Behavior and Personality*. 2008; (3): 425-432.
45. Roseman I J. Cognitive determinants of emotion: a structural theory. *Review of*

- Personality and Social Psychology. 1984; 2(5): 11-36.
46. Coleman N V, Williams P, Morales A C, et al. Attention, attitudes, and action. *Journal of Consumer Research*. 2017; 44(2), 283–312.
  47. Berman M, El-Sabawi T, Shields P. Risk assessment for tobacco regulation. *Tobacco Regulatory Science*. 2019;5(1):36-49.  
doi: <https://doi.org/10.18001/TRS.5.1.4>