

# The Rational — Irrational Dialectic with the Moderating Effect of Cognitive Bias in the Theory of Planned Behavior

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**Abstract:** *A standard economic model (i.e., Theory of Planned Behavior) is based largely on logical cognition (Ajzen & Fishbein, 1991). As a result, it is known for the rational component in the theory predominates in influencing the dependent variable that is intention; meaning that, TPB largely ignores the role of irrational influences in decision making. However, in reality, an individual decision is based on both rational and irrational forces (Micklitz et al., 2011; Mullainathan & Thaler, 2000). The study, being explorative, include Cognitive Bias as a moderator to predict female consumers purchase intention towards cosmetic products choice paradox. Hence, to the extent that it can incorporate the measurement of irrational variation, this study postulates that TPB can be improved as a model of behavioural intention. A self-administered questionnaire was employed to gather data from 380 consumers via purposive sampling and subsequently analysed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). This study attempts to investigate if Cognitive Bias which is known as an irrational factor moderates, that is, either improves or reduces purchase decision of consumers due to the causal effects of Behavioral Beliefs and Attitude. As a result, it has been found that people's decision making is heavily influenced by the framing of the problem which is known as Cognitive Bias (van Schie & van der Pligt, 1995; Elliot & Archibald, 1989; Tversky & Kahneman, 1981); thus, Cognitive Bias violates Expected Utility Theory.*

**Keywords:** *Cognitive Bias; Rational Model; Irrationality; Cosmetics.*

## 1. INTRODUCTION

People often think they are making smart decisions and behaving in ways that are highly rational especially when choosing what product /services to buy. If people are rational, one would expect that their final decisions would be rational as well. However, people are not always rational. This is because a consumer's thoughts and actions are the sum effect of both rational and irrational factors (Herrmann, 2015; Becker, 1962). For instance, the Theory of Planned Behavior (TPB) model was designed to focus exclusively on rational reasoning (Sniehotta et al., 2014; Sheeran et al., 2013; Conner et al., 2013; Ajzen, 2011); excluding affective processes. Meanwhile, the current efforts to account for irrationality in human decision making is largely ad hoc. Therefore, this study employs the TPB as the base model; and proposes to integrate Cognitive Bias to explain the effects of cosmetic users' irrational behaviors from the psychoanalysis perspectives. Researchers have paid scant attention to the cognitive and affective components behind this phenomenon (Mick et al., 2004; Havlena & Holbrook, 1986). This study will focus on the cosmetics industry because the role of irrationality is most apparent in this industry (Sinha, 2003; Bray, 2008). Hence, it is here, in the cosmetics industry, irrational factors are juxtaposed in stark contrast.

### *1.1 Problem Statement*

The critics of this theory claim that TPB too 'rational,' because it does not take sufficient account of cognitive and affective processes which are known to bias human judgments and decision making (Esposito, van Bavel et al., 2016; Sniehotta et al., 2014). However, in reality, an individual decision is based on both rational and irrational forces (Micklitz et al., 2011; Mullainathan & Thaler, 2000). Nevertheless, TPB contemplates consumer decision making process as a logical problem-solving process.

The interdisciplinary sciences support that irrationality is induced by psychological forces (affective and cognitive heuristics). This is further supported by Ellis (1976) who posited that irrationality is a basic human act. Extensive experimental shreds of evidence from cognitive psychology on the cognitive biases that arise from humans' beliefs and preferences have since been recorded (Tversky & Kahneman, 1974, 1981, 1986). However, the current efforts to account for irrationality in human decision making is largely ad hoc. Therefore, the approach of Cognitive Bias, Kahneman & Tversky (1972) plays an important role as a moderator in the rational economic model.

This study selects cosmetic industry as the context because of the subjective nature (irrational) of cosmetic use, which makes it ideal for creating a unified theory that incorporate rational and irrational factors. On the global basis, countless brands sell similar products and different features influence consumers' selections of products (Wu & Lee, 2016; Kumar & Babu, 2014). The complexity of decision making intensifies further with the abundance of choice and retail outlets including online sales, which creates a massive array of choice for consumers as well. As a result, the cosmetics industry is consistently changing and new products with distinctive features have been introduced through exhibition events.

### *1.2 Research Objectives*

The objective of this study is to examine the moderating effect of Cognitive Bias on cosmetic users' Purchase Intention.

Research Objective 1: To determine the relationship between Behavior Beliefs and Attitude of cosmetic users.

Research Objective 2: To determine the relationship between Attitude and Purchase Intention of cosmetic users.

Research Objective 3: To determine the moderating effects of Cognitive Bias on Behavior Beliefs and Attitude towards cosmetic users Purchase Intention.

## **2. LITERATURE REVIEW**

*Irrationality* stems from the inability to override automatic emotional responses; thus, letting our feelings and experiences override logic that gets the better of us. Apparently, this phenomenon concerns actions or beliefs which are completely inexplicable; or, it could be the consequence of applying a human model to some actions and beliefs in various social sciences (Toth, 2013). Kahneman (2011) demonstrated that human decision-making is based not entirely on rational thought; instead, Kahneman describes many short-comings of human decision-making such as automatic or immediate reactions, which is based on heuristics and human biases. TPB model have been utilized as the underpinning theory in this study to resolve a frequently voiced criticism—that TPB is too "rational" and does not sufficiently account for cognitive and affective process that are known to bias human judgements and behavior (Ajzen, 2011, pp 1115). Cognitive biases influence people to over rely on observations or previous knowledge thus possibly leading to poor decisions (Shah & Oppenheimer, 2008).

Quite many behavioral researches have addressed cognitive biases— faulty mental processes that lead judgments and decisions to violate commonly accepted normative rules of probability or principles. These biases shape an individual's "subjective social reality" through conscious or subconscious distortions of judgments and decisions because of self-interest, social pressures, or

organizational context (Kahneman, 2011; Bonner, 2008; Tversky & Kahneman, 1974); and these can result in errors in reasoning, logic and evaluation. It has commonly been assumed that, cognitive biases usually arise from several phenomenon, namely too much of information, insufficient meaning, the need to act quickly, wide array of products and stores, similarity of products, ambiguous, misleading or inadequate information conveyed through marketing communications and the limits of memory; whereby, many of these biases affect belief formation, business and economic decisions, and finally human behavior in general (Dougherty et al., 1999; Vincent-Wayne & Vassilios, 1999).

*Cognitive Bias* usually arise from several phenomenon, namely too much of information, insufficient meaning, the need to act quickly, wide array of products and stores, similarity of products, ambiguous, misleading or inadequate information conveyed through marketing communications and the limits of memory; whereby, many of these biases affect belief formation, business and economic decisions, and finally human behavior in general (Dougherty et al., 1999; Vincent-Wayne & Vassilios, 1999). According to ASEAN Guidelines for Cosmetics (2016), the increase in cosmetic products and stores, has spawned an intense competition in the market and also that consumers are willing to pay more for the products in order to achieve a better look, reverse signs of ageing, as well as maintain healthy skincare regimes. This phenomenon is known as paradox of choice which has framed that too many choices and the plethora of options of cosmetics can be either beneficial or costly; and risky to consumers (Huber et al., 2012; Nicholls & Lee, 2006); as such, this phenomenon could motivate or demotivate consumers purchasing behavior (Schwartz, 2004). To add on, consumer decisions are also often influenced by the order of product presentation, the framing of incentives, and default options (Kaplan & Reed, 2013; Herrmann et al., 2009). These phenomena influence ones' beliefs, behavior and decision making. Following from the above, it is clear that cognitive biases are the effects of information-processing rules (i.e., mental shortcuts), called heuristics—where shortcuts could lead to poor decisions or judgments (Tversky and Kahneman, 1974). Despite being known as anomalies to improve the predictions of the rational choice model, cognitive biases can also be operationalized to enhance the profitability and the competitive advantage of the firm. Seemingly, cognitive biases not only influence the behavior of individuals, but also other factors within the rational models (Hanson & Kysar, 1999)

*Intention* is used to explain of the determinants of technology acceptance that is general, capable of explaining human behavior across a broad range of end-use computing technologies (Venkatesh et al., 2003). Furthermore, the important role of intention-based decision-making modelling has been recognized in a diversity of experimental studies, including behavioral economics (Radke et al., 2012; Falk et al., 2008) and morality (Young & Saxe, 2011; Young et al., 2007). In psychology, the notion of intention suggests that an individual form a behavioral intention toward a behavior when their intention controls the actual response (Dulany, 1961). Consequently, the stronger the intention to engage in a behavior, the more likely it will influence engagement in the actual behavior (Dean et al., 2007). Related to the context this study, it is suggested that three conceptually independent factor, namely, Attitude directly influence intention to engage.

*Behavioral Beliefs* are derived from subjective probability assumptions which are easily accessible in memory. These beliefs are formed based on personal experience, information sources and inferences. The beliefs being examined can be personal accessible beliefs or modal accessible beliefs (i.e., a list of commonly held beliefs in the research population). For instance, the cosmetic users' belief that cosmetics are substances to enhance their appearance. It creates a positive image to the cosmetic users. Consequently, a positive result indicates that a person believes good outcomes are likely to result from the behavior or believes that bad outcomes are not likely to occur; meanwhile, negative result means that a person perceives negative outcomes will likely occur after engaging in the behavior, or that good outcomes are unlikely to occur after performing the behavior. In other words, Behavioral Beliefs produce a favorable or unfavorable attitude towards behavior (Ajzen,

1991). Therefore, attitude is a combination of the individual's idea of the result of a certain behavior and that individual's evaluation of those results. In other words, attitude is determined both by the consequence that the individual believes will result from a behavior compared with other behaviors, and the importance of the results to the individual. When the individual's attitude to behavior is more positive, the behavior intention will be higher. On the contrary, when the individual's attitude to behavior is more negative, the behavior intention will be lower.

*Attitude* has been shown to be one of the most fundamental drivers of human behavior because they determine which stimuli we need to approach; or to avoid. A review of the extant literature indicates various definitions of attitude. Kotler (2000) defines attitude to be a person's favourable or unfavourable evaluations, emotional feelings, and action tendencies toward an object or idea. Whereas, Fishbein & Ajzen (1975) have defined consumer attitudes as 'a learned predisposition of human beings' in contrast to irrational impulsive decisions. Similarly, Blackwell et al., (2006), postulate a simple definition of attitude to represent one's likes and dislikes or the amount of positive and negative assessment of executing the defined action. Bitta & Loudon (2003) attributed into three characteristics to attitude namely, a personal feeling on the specific object or action, direction and degree from very favorable to unfavourable, and finally, attitudes may not persist, if the direct and indirect experiences, together with other sources, are changed. Prior studies have shown that there are multiple factors which can influence an individual's attitude; for instance, friends, family, media, colleagues and so forth which subsequently shape and form perception, personality, motivation and emotion (Schlenker, 1978). A number of previous studies have shown that attitude has a positive impact on intention. In the cosmetics industry, some research has explored consumer attitudes towards personal care products positive influence on consumers purchase intention (Yeon Kim & Chung, 2011). Closer to the context of this study, in particular, to enhance physical appearance, consumers may have affirmed cosmetic procedures as an absolute solution, resulting in a positive attitude toward such procedures (Sarwer et al., 1998). In sum, a consumer with positive attitudes towards physical appearances will be more likely to evaluate cosmetics favourably which could influence intention positively; whereas a negative attitude should predispose the same consumer to prevention tendencies (Verbeke & Vackier, 2005).

### 2.1 *Hypotheses Development*

This study attempts to investigate if Cognitive Bias which is known as an irrational factor moderates, that is, either improves or reduces purchase intention of consumers due to the causal effects of Behavioral Beliefs and Attitude. It has been found that people's decision making is heavily influenced by the framing of the problem which is known as Cognitive Bias (van Schie & van der Pligt, 1995; Elliot & Archibald, 1989; Tversky & Kahneman, 1981). Also, the direct relationship of Behavioral Beliefs and Attitude; and Attitude and Intention further tested to justify the significant of the model in cosmetic users purchase intention.

TPB stipulates the nature of relationships between Behavioral Beliefs and Attitude. For instance, if attributes are positively allied to the object, consumers inevitably acquire a positive attitude towards the object. As such, a positive result indicates that a person believes good outcomes are likely to result from the beliefs after engaging in the behavior; or, the good outcomes are unlikely to occur after performing the behavior: In other words, behavioral beliefs produce a favourable or unfavourable attitude toward behavior (Ajzen, 1991). However, attitude depends on expectations and beliefs in the personal impacts on the outcomes resulting from that behavior. Similarly, it focuses on the perceived consequences of a purchase (Ajzen & Fishbein, 1980).

For instance, consumer beliefs that cosmetic procedures or positive usage as a solution to enhance physical appearance resulting in positive attitude towards the behavior (Sarwer et al., 1998). Hence, this research hypothesizes that there is a positive relationship between Behavioral Beliefs and Attitude.

**H1:** There is a significant relationship between Behavioral Beliefs and Attitude on cosmetic products.

Ajzen's (1985) TPB suggests that attitude refers to an individual's feelings toward an object and can be measured on personal evaluations, ranging from positive to negative or favourable to unfavourable intention to perform the behavior. On the other hand, Khan (2012) denoted attitude as the conduct, nature, temperament, thought and way of behaving which can be either positive or negative in purchasing behavior. Meanwhile, Perner (2010) defines attitude as a complex of consumer's beliefs, feelings, and behavioral intentions toward objects within the context of marketing. Numerous studies have supported the positive relationship between consumer attitude and intentions in different product categories, such as organic foods and timber-based products, halal products and many others (Tarkiainen & Sundqvist, 2005; Chan & Lau, 2002; Kalafatis et al., 1999). In a related study on cosmetics buying behavior, experimental evidence of attitude and intention reveal that cosmetic procedures are viewed positively as a solution to enhance physical appearance, resulting in a positive attitude toward such procedures (Sarwer et al., 1998); This, in turn, influences greater intention to engage in cosmetic procedures (Sood et al., 2017; Prestwich et al., 2008; Brown et al., 2007; Pitts-Taylor, 2007).

Cosmetics are perceived to boost one's appearances and self-confidence. It is apparent that, beautifying oneself will lead to self-satisfaction. Moreover, according to the TPB (Ajzen, 1991), when a person's attitude towards engaging in a behavior is positive, then he or she is more likely to engage in that behavior. Therefore, the following hypothesis is offered.

**H2:** There is a significant relationship between Attitude and Intention on cosmetic products.

These relationships offers some important insights into the fact that a consumer is likely to make product and service purchase decisions based on personal valuations of gains and losses that diverge significantly from a pure rational perspective based on maximizing expected utilities (Kahneman & Tversky, 1979). It means that individuals facing favourable conditions tend to be more risk averse because they feel they have more to lose than to gain. On the other hand, individuals facing unfavourable circumstances tend to be more risk seeking, because they feel they have little to lose (Kahneman & Tversky, 1991).

This study attempts to investigate if Cognitive Bias moderates, that is, either improves or reduces, the causal effects of Behavioral Beliefs and Attitude. Kahneman and Tversky (1979), rigorously studied cognitive biases, and they subsequently proved that a simple version of expected utility theory did not accurately describe human behavior. Hence, this research hypothesizes the following moderating hypotheses: -

**H3:** Cognitive Bias moderates the relationship between Behavioral Beliefs and Attitude where under High Cognitive Bias, Behavior Beliefs tends to strengthen the relationship on Attitude than low Cognitive Bias.

## 2.2 Research Framework

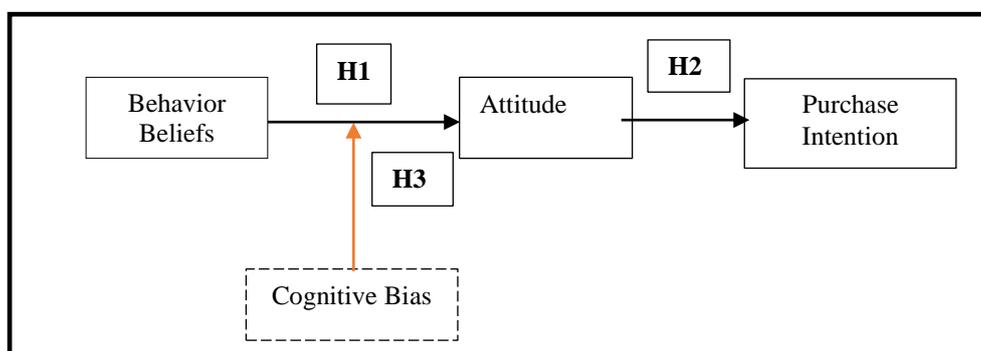


Figure1: Research Framework based on Theory of Planned Behavior

## 3. METHODOLOGY

A quantitative approach is employed in this study. Non-probability purposive sampling will be used because the targeted respondents are selected based on their age and gender. In this research, respondents at the age of 18 years and above who are considered as adults, so are chosen. A

purposive sample is a non-probability sample that is selected based on the characteristics of a population and the objective of the study. Further, about 400 sets of self-administered questionnaires were distributed in and around the Klang Valley area and 387 sets are valid for further analysis. Cohen (1988) advocates that, whenever there is a larger representative sample size, it reduces sampling error and improves the precision of research result, that is, allowing the findings to be generalized to the population (Sekaran & Bougie, 2013). This research uses SPSS Software to perform descriptive analysis and the Structural Equation Modelling (SEM) technique to test the measurement model.

Apparently, for this study, the variables operationalized using compilation of well-established scales derived from an extensive review of past literature. The first section records the demographic profile of respondents involved in this research. The following section will examine the 4 constructs which all follow the 7-point Likert Scale.

#### 4. RESULTS AND FINDINGS

The indicator loadings, composite reliability (CR) and average variance extracted (AVE) of the constructs are shown in Table 1. All loadings exceeded the recommended value of 0.708 (Hair et al., 2014). Although Hair et al., (2010) have stated that suggested outer loading values should be equal or greater than 0.708, however, Hulland (1991) has a dissenting view. Hulland proposed that outer loading values equal to or greater than 0.4 are acceptable if the Average Variance Extract (AVE) scores are greater than 0.5. AVEs were greater than 0.5 (Hair et al., 2014). Thus, the constructs satisfied the reliability and convergent validity requirement.

Table 1: Measurement Model: Factor Loadings, CR, and AVE

Construct	Loading	AVE	Composite Reliability	
Attitude	0.937	0.849	0.957	
	0.948			
	0.939			
	0.858			
Behavior	0.817	0.708	0.906	
	Beliefs			0.870
	0.780			
Intention	0.894	0.818	0.931	
	0.873			
	0.932			
	0.907			

Path-coefficient were assessed to evaluate the significance of hypothesized relationships among the constructs. Based on the model, there are two (2) hypotheses that propose direct relationships among the constructs. To test the significance level, t-statistics for all the paths were generated using SMART-PLS bootstrapping function. With a sample size of 387, with 500 subsamples, the results were determined based on:

Firstly, the T-Value: must be  $\geq 1.645$

Secondly, based on Confidence Interval, the value of 0 must not straddle in between the Confidence Interval (Hanh et al, 2017)

Table 2: Assessment of Path - Coefficient (N=387)

Direct Relationship	Std Beta	Std Error	T Value	P Value	Confidence Interval		Result
					Lower Bound	Upper Bound	
Attitude-> Intention	0.503	0.061	8.183	0.000	0.401	0.601	Significant

(H2)							
Behavioral Beliefs-> Attitude (H1)	0.648	0.031	20.624	0.000	0.579	0.690	Significant

As shown in Table 2, the T-Values for all the direct relationships comply with the first requirement. Hence, there is no “0” straddle in between the confidence interval to bias the results. Therefore, it can be concluded that the direct relationships (H1 and H2) are significant.

In order to assess the moderating effect of a construct in PLS-SEM, interaction terms between the moderator and the predicting variables were created to examine its effect on the endogenous variable. This study proposed Cognitive Bias as the moderator. The results of the findings will be determined by the T-Value. The T-Value must be  $\geq 1.645$ . The interaction results of Cognitive Bias are showed in Table 3.

Table 3: Assessment of Moderating Effect (Cognitive Bias)

Moderating Relationship	Original Sample	Standard Error	T Value	P Value	Result
Behavioral Beliefs*Cognitive Bias -> Attitude (H3)	-0.071	0.043	1.651	0.099	Significant

Table 3 depict one hypothesized moderation effects of Cognitive Bias that were supported (H3). Specifically, the result indicated a significant interaction terms — Behavioral Beliefs\*Cognitive Bias (t-value= 1.651,  $p < 0.05$ )

## 5. CONCLUSION

The hypothesized relationships were assessed based on the results of path analysis (direct effect) using bootstrapping technique and interaction term technique to assess moderating effect as suggested by Hair et al. (2014) and the results are significant. Therefore H1, H2 and H3 are supported in this study. Thus, the achievement of the objectives of this study is evidenced by the determination of significant t-values of the path coefficient and interaction effects.

This study set out to complement cognitive rationality, which is already present in the TPB model, by introducing the influence of irrational construct, namely Cognitive Bias as a moderator to complete the picture. Hence, this study reconciles the gaps found in TPB model which is known for ignoring the role of irrational influences in decision making.

The results of this investigation provide evidence that rational decision-making processes co-exist with irrational components that influence the purchase decision, beliefs, and attitudes of decision makers. Thus, it calls for the cosmetic industries in Malaysia to create business strategies that are better suited to their consumers. This study is believed to assist the marketers—if they are able to identify consumers’ purchase decision constructively.

### 5.1 Implications for Business Marketing Practice

The results show that Behavior Beliefs and Attitudes toward purchasing cosmetic shows a significant result. This relationship is further enhanced with the influence of Cognitive Bias as a moderator. This enhancement should assist marketers to further strategize their marketing techniques to cope with the intense competition in the industries due to the immense variety of cosmetic products, brand, and retailers.

New marketing techniques have been attempted by the cosmetics practitioners continuously to obtain competitive advantages but unfortunately, firms have failed to control consumers’ perceived

consumption situation. For the cosmetics industry, consumption situations and empirical marketing are important factors of the daily marketing model. It is important to discover how people arrive at a decision to buy cosmetic products which consists of a very wide array of choices. Therefore, Cognitive Bias is important to marketers because every customer is affected by its influence on how consumers experiences a brand, and how they feel about a company and its website. The marketers may take advantage of Cognitive Bias and exploit their consumers buying decisions by crafting a persuasive message without even having to be subliminal. Marketers should create a clear visual hierarchy and avoid offering too many choices to customers. On the other hand, repetitive marketing tactics such as the advertisement can invoke consumer psychology to implant product attribute beliefs that the manufacturer never explicitly claims. Consequently, consumers can be exposed to product packages, or marketing communications. The emergence of these changes provides solutions to many seemingly market paradoxes especially in cosmetic industries that cannot be explained using standard economic models.

### 5.2 *Future Research Directions*

Despite being known as anomalies to improve the predictions of the rational choice model, cognitive biases can also be operationalized to enhance the profitability and the competitive advantage of the firm. Seemingly, cognitive biases not only influence the behavior of individuals, but also other factors within the rational models (Hanson & Kysar, 1999); hence, various marketing technique such as advertising, promotion, and price setting eventually can become means of altering consumer risk perceptions.

Research should be conducted to ascertain whether various cognitive biases are accounted for by common bias susceptibility factors; or whether various biases reflect distinct constructs (e.g., confirmation bias, fundamental attribution error). The study of different Cognitive Biases should be investigated in future studies together with other variables in Theory of Planned Behavior as well.

## 6. REFERENCES AND NOTES

- [1] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179.
- [2] Ajzen, I. (2011). *The theory of planned behaviour: reactions and reflections*: Taylor & Francis.
- [3] Becker, G. S. (1962). Irrational behavior and economic theory. *Journal of political economy*, 70(1), 1-13.
- [4] Bettman, J. R., Luce, M. F., & Payne, J. W. (1998). Constructive consumer choice processes. *Journal of Consumer Research*, 25(3), 187-217.
- [5] Bitta, A. D., & Loudon, D. (2003). *Consumer Behavior*.
- [6] Bonner, S. E. (2008). *Judgment and decision making in accounting*. Prentice Hall.
- [7] Blackwell, R. D., Paul, W. M., & James, F. E. (2006). „Attributes of Attitudes. *Consumer Behavior*, 235-243.
- [8] Bray, J. P. (2008). *Consumer behaviour theory: approaches and models*.
- [9] Brown, A., Furnham, A., Glanville, L., & Swami, V. (2007). Factors that affect the likelihood of undergoing cosmetic surgery. *Aesthetic Surgery Journal*, 27(5), 501-508.
- [10] Chan, R. Y., & Lau, L. B. (2002). Explaining green purchasing behavior: A cross-cultural study on American and Chinese consumers. *Journal of international consumer marketing*, 14(2-3), 9-40.
- [11] Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- [12] Conner, M., Godin, G., Sheeran, P., & Germain, M. (2013). Some feelings are more important: Cognitive attitudes, affective attitudes, anticipated affect, and blood donation. *Health Psychology*, 32(3), 264.
- [13] Dougherty, M. R., Gettys, C. F., & Ogden, E. E. (1999). MINERVA-DM: A memory processes model for judgments of likelihood. *Psychological Review*, 106(1), 180.

- [14] Dean, R. N., Farrell, J. M., Kelley, M. L., Taylor, M. J., & Rhodes, R. E. (2007). Testing the efficacy of the theory of planned behavior to explain strength training in older adults. *Journal of Aging and Physical Activity*, 15(1), 1-12.
- [15] Dulany Jr, D. E. (1962). The place of hypotheses and intentions: an analysis of verbal control in verbal conditioning 1. *Journal of Personality*, 30(3), 102-129.
- [16] Elliott, C. S., & Archibald, R. B. (1989). Subjective framing and attitudes towards risk. *Journal of Economic Psychology*, 10(3), 321-328.
- [17] Ellis, A. (1976). The rational-emotive view. *Journal of Contemporary Psychotherapy*, 8(1), 20-28.
- [18] Erasmus, A. C., Boshoff, E., & Rousseau, G. (2001). Consumer decision-making models within the discipline of consumer science: a critical approach. *Journal of Consumer Sciences*, 29(1).
- [19] Esposito, G., van Bavel, R., Baranowski, T., & Duch-Brown, N. (2016). Applying the Model of Goal-Directed Behavior, Including Descriptive Norms, to Physical Activity Intentions: A Contribution to Improving the Theory of Planned Behavior. [Article]. *Psychological Reports*, 119(1), 5-26. doi: 10.1177/0033294116649576.
- [20] Falk, A., Fehr, E., & Fischbacher, U. (2008). Testing theories of fairness—Intentions matter. *Games and Economic Behavior*, 62(1), 287-303.
- [21] Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research.
- [22] Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. *Annual review of psychology*, 62, 451-482.
- [23] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate Data Analysis*. Prentice Hall.
- [24] Hair, J. F. J., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Long Range Planning (Vol. 46). Thousand Oaks, California: Sage Publications, Inc. doi:10.1016/j.lrp.2013.01.002
- [25] Hanson, J. D., & Kysar, D. A. (1999). Taking behavioralism seriously: The problem of market manipulation. *NYUL Rev.*, 74, 630.
- [26] Havlena, W. J., & Holbrook, M. B. (1986). The varieties of consumption experience: comparing two typologies of emotion in consumer behavior. *Journal of Consumer Research*, 13(3), 394-404.
- [27] Herrmann, J. W. (2015). *Engineering decision making and risk management*: John Wiley & Sons.
- [28] Herrmann, A., Heitmann, M., Morgan, R., Henneberg, S. C., & Landwehr, J. (2009). Consumer decision making and variety of offerings: The effect of attribute alignability. *Psychology & Marketing*, 26(4), 333-358.
- [29] Ho, T. H., Lim, N., & Camerer, C. F. (2006). How “psychological” should economic and marketing models be? *Journal of Marketing Research*, 43(3), 341-344.
- [30] Huber, O. (2012). Risky decisions: Active risk management. *Current Directions in Psychological Science*, 21(1), 26-30.
- [31] Huffman, C., & Kahn, B. E. (1998). Variety for sale: Mass customization or mass confusion? *Journal of retailing*, 74(4), 491-513.
- [32] Johnson, P. (2006). *Business Models Astute Competition* (pp. 53-72): Emerald Group Publishing Limited.
- [33] Kahneman, D. (2011). *Thinking, fast and slow*: Macmillan.
- [34] Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness The concept of probability in psychological experiments (pp. 25-48): Springer.
- [35] Kahneman, D., Slovic, P., & Tversky, A. (1982). *Judgments under uncertainty. Heuristics and Biases*, Cambridge.
- [36] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291. Recuperado de <http://www.jstor.org/pss/1914185>.

- [37] Kalafatis, S. P., Pollard, M., East, R., & Tsogas, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: a cross-market examination. *Journal of consumer marketing*, 16(5), 441-460.
- [38] Kaplan, B. A., Reed, D. D., & Jarmolowicz, D. P. (2016). Effects of episodic future thinking on discounting: Personalized age-progressed pictures improve risky long-term health decisions. *Journal of applied behavior analysis*, 49(1), 148-169.
- [39] Khan, S. (2012). Factors Responsible for Making Consumer Attitude towards Islamic Banking: A Study of Islamic Banks Accountholders of Peshawar Region Pakistan. *Arabian Journal of Business and Management Review (OMAN Chapter)*, 2(1), 136.
- [40] Kotler, P. (2000), *Marketing Management*, Prentice-Hall, Englewood Cliffs, NJ
- [41] Kumar, A. A., & Babu, S. (2014). Factors influencing consumer buying behavior with special reference to dairy products in Pondicherry state. *J. Res. Manage. Technol*, 65, 65-73.
- [42] Langley, A., Mintzberg, H., Pitcher, P., Posada, E., & Saint-Macary, J. (1995). Opening up decision making: The view from the black stool. *organization Science*, 6(3), 260-279.
- [43] Mick, D. G., Broniarczyk, S. M., & Haidt, J. (2004). Choose, choose, choose, choose, choose, choose, choose: Emerging and prospective research on the deleterious effects of living in consumer hyperchoice. *Journal of Business Ethics*, 52(2), 207-211.
- [44] Micklitz, H.-W., Reisch, L. A., & Hagen, K. (2011). An introduction to the special issue on "behavioural economics, consumer policy, and consumer law". *Journal of Consumer Policy*, 34(3), 271-276.
- [45] Mullainathan, S., & Thaler, R. H. (2000). *Behavioral economics*: National Bureau of Economic Research.
- [46] Nicholls, A., & Lee, N. (2006). Purchase decision-making in fair trade and the ethical purchase 'gap': 'is there a fair trade twix?'. *Journal of Strategic Marketing*, 14(4), 369-386.
- [47] Norman, D. A. (2004). *Emotional design: Why we love (or hate) everyday things*: Basic Civitas Books.
- [48] O'Shaughnessy, J., & Jackson O'Shaughnessy, N. (2002). Marketing, the consumer society and hedonism. *European Journal of Marketing*, 36(5/6), 524-547.
- [49] Perner, L., (2010). *Consumer behavior: the psychology of marketing*. Retrieved July 2, 2017.
- [50] Pitts-Taylor, V. (2007). *Surgery junkies: Wellness and pathology in cosmetic culture*. Rutgers University Press.
- [51] Prelec, D. (2006). Rebuilding the boat while staying afloat: The modeling challenge for behavioral economics. *Journal of Marketing Research*, 43(3), 332-336.
- [52] Prestwich, A., Perugini, M., & Hurling, R. (2008). Goal desires moderate intention-behaviour relations. *British Journal of Social Psychology*, 47(1), 49-71.
- [53] Radke, S., Güroğlu, B., & de Bruijn, E. R. (2012). There's something about a fair split: intentionality moderates context-based fairness considerations in social decision-making. *PLoS One*, 7(2), e31491.
- [54] Sarwer, D. B., Wadden, T. A., Pertschuk, M. J., & Whitaker, L. A. (1998). The psychology of cosmetic surgery: A review and reconceptualization. *Clinical psychology review*, 18(1), 1-22.
- [55] Schlenker, B. R. (1982). Translating Actions into Attitudes: An Identity-Analytic Approach to the Explanation of Social Conduct. In *Advances in experimental social psychology* (Vol. 15, pp. 193-247). Academic Press.
- [56] Schwartz, B. (2004). The paradox of choice: Why more is less.
- [57] Sekaran, U., & Bougie, R. (2013). *Research Methods for Business*. In *Research methods for business* (p. 436).
- [58] Shah, A. K., & Oppenheimer, D. M. (2008). Heuristics made easy: An effort-reduction framework. *Psychological bulletin*, 134(2), 207.
- [59] Sheeran, P., Gollwitzer, P. M., & Bargh, J. A. (2013). Nonconscious processes and health. *Health Psychology*, 32(5), 460.
- [60] Sheng, H., & Joginapelly, T. (2012). Effects of web atmospheric cues on users' emotional responses in e-commerce. *AIS Transactions on Human-Computer Interaction*, 4(1), 1-24.

- [61] Sinha, P. K. (2003). Shopping orientation in the evolving Indian market. *Vikalpa*, 28(2), 13-22.
- [62] Sniehotta, F. (2009). An experimental test of the theory of planned behavior. *Applied Psychology: Health and Well-Being*, 1(2), 257-270.
- [63] Sood, A., Quintal, V., & Phau, I. (2017). Keeping Up With the Kardashians: Consumers' Intention to Engage in Cosmetic Surgery. *Journal of Promotion Management*, 1-22. doi: 10.1080/10496491.2016.1267677.
- [64] Sproule, S., & Archer, N. (2000). A buyer behaviour framework for the development and design of software agents in e-commerce. *Internet research*, 10(5), 396-405.
- [65] Stojanović, B. (2013). Daniel Kahneman: The riddle of thinking: Thinking, fast and slow, Penguin books, London, 2012. *Panoeconomicus*, 60(4), 569-576.
- [66] Toth, F. (2013). The choice of healthcare models: How much does politics matter? *International Political Science Review*, 34(2), 159-172.
- [67] Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131.
- [68] Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453-458.
- [69] Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Journal of business*, S251-S278.
- [70] Van Schie, E. C., & Van Der Pligt, J. (1995). Influencing risk preference in decision making: The effects of framing and salience. *Organizational Behavior and Human Decision Processes*, 63(3), 264-275.
- [71] Verbeke, W., & Vackier, I. (2005). Individual determinants of fish consumption: application of the theory of planned behaviour. *Appetite*, 44(1), 67-82.
- [72] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- [73] Vincent-Wayne, M., & Vassilios, P. (1999). Marketing causes and implications of consumer confusion. *Journal of Product & Brand Management*, 8(4), 319-342. doi: doi:10.1108/10610429910284300
- [74] Witte, E., Joost, N., & Thimm, A. L. (1972). Field research on complex decision-making processes-the phase theorem. *International Studies of Management & Organization*, 2(2), 156-182.
- [75] Wu, P.-T., & Lee, C.-J. (2016). Impulse buying behaviour in cosmetics marketing activities. *Total Quality Management & Business Excellence*, 27(9-10), 1091-1111. doi: 10.1080/14783363.2015.1060851
- [76] Yeon Kim, H., & Chung, J.-E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1), 40-47.
- [77] Young, L., & Saxe, R. (2011). When ignorance is no excuse: Different roles for intent across moral domains. *Cognition*, 120(2), 202-214.
- [78] Young, L., Cushman, F., Hauser, M., & Saxe, R. (2007). The neural basis of the interaction between theory of mind and moral judgment. *Proceedings of the National Academy of Sciences*, 104(20), 8235-8240.
- [79] Zhang, H., Fu, X., Cai, L. A., & Lu, L. (2014). Destination image and tourist loyalty: A meta-analysis. *Tourism Management*, 40, 213-223.