

# Influences of Entrepreneurs' Affect and Self-esteem on Escalation of Commitment

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## Abstract

The entrepreneurial environment is changing rapidly and uncertain, in which risks and opportunities coexist. Entrepreneurs may gain success, fortune, reputation and status, but also may encounter setback and failure. Sometimes, entrepreneurs will encounter the dilemma of whether to persist to invest to a failing action in entrepreneurial process, and are easy to have the decision-making tendency of escalation of commitment. Escalation of commitment is a typical decision - making and judgment bias occurring in entrepreneurial process, which will directly impact the success and failure of entrepreneurship. In this study, the escalation of commitment is explored from the aspects of entrepreneurs' affect and self-esteem, for which the experimental methods are adopted to have investigation on entrepreneurs, and the results show that there is significance difference in escalation of commitment among entrepreneurs with high self-esteem level and entrepreneurs with medium self-esteem level, and entrepreneurs with medium self-esteem level are more tend to escalation of commitment than entrepreneurs with high self-esteem level.

**Keywords:** entrepreneurs, affect, self-esteem, escalation of commitment

## 1. Introduction

When being asked about the secret of success in entrepreneurship, Mark Elliot Zuckerberg, the co-founder of Facebook answered: "never give up!" which has always been taken as the winning formula. However, when the entrepreneurs are facing of the dilemma of whether to persist to invest to a failing investment, persisting to investment maybe not an entirely rational decision, and the losses incurred by escalation of commitment may also challenge the words "never give up".

Entrepreneurship research has been the focus of social, educational and academic researches since 1980s. And entrepreneurship is also deemed as an effective method to control the unemployment ratio. This article attempts to explore it from the aspects of entrepreneurs' self-esteem and cognitive perspectives, thus to investigate the influences of entrepreneurs' affect and self-esteem on escalation of commitment. The cognitive psychological theories show that people' s cognitive process is not entirely rational, and individuals' thoughts and ideas are often affected by a lot of potential bias and fallacies. Relevant studies indicate that decision-making of entrepreneurs often deviate from rational economic model (Kahneman & Tversky, 1973) and show systematic cognitive bias, such as counterfactual thinking, affect infusion, attribution style, planning fallacy, self-justification and escalation of commitment, which will directly impact the risk decision of entrepreneurs. And to some extent, entrepreneurs are more tend to escalation of commitment than others (Robrert, 1998).

Staw (1997) defined "escalation of commitment" as the phenomenon that "decision-makers persist to invest resources to previous action when they are facing of the consequence of failure" . In the subsequent 20 years, escalation of commitment has been widely researched by scholars, and relevant researches involve medical decision making, financial investment, product development, personnel and project evaluation and other decision scenarios or areas (Vergo *et al.*, 2018; Mayberry *et al.*, 2018; Braxton *et al.*, 2017). In the "face" cultural environment of China, the phenomenon of escalation of commitment are particularly serious. In interpersonal communication, people usually prefer to show achievements and avoid image loss, which will result in a deeper level of escalation of commitment. The organizational behavior studies show that escalation of commitment will make an organization gets into trouble and suffers from losses, reduce the competitiveness of organization, impact the adaption of organization to environment, and make individuals of organization easy to have negative affect and risk propensity. The study conducted by Jessica (2014) *et al.* shows that negative affect, such as anticipated regret and anxiety, will impact the escalation of commitment. And among the planning factors, sunk cost effect and project completion effect have significant influences on escalation of commitment, where with low, medium sunk cost, the escalation of commitment under the condition of high project completion is higher than that under the condition of low project completion (Feldman & Kfe, 2018); in addition, there is difference between entrepreneurs community and enterprise top managers, that is at a low level of project completion, entrepreneurs are more tend to escalation of commitment than enterprise top managers (Gilad *et al.*, 2018). From the perspective of prospect theory, the more time and technologies are put in early stage, the more likely entrepreneurs are to persist to invest, but the psychological budget has negative impact on escalation of commitment (Niu *et al.*, 2012).

Furthermore, escalation of commitment may also be influenced by emotional and affective factors. The entrepreneurs shall make decision on dilemmas all the time (Eisenhardt & Sull, 2001; Walsh, Meyer, &

Schoonhoven, 2006). At the time of executing completely uncertain and unpredictable task, affect may be the key to regulation and decision-making (Baron, 2008). Zhou *et al.* put forward that entrepreneurs' positive affect will impact cognition through priming processing and constructive processing, which can account for the irrational bias in decision well. Affect can impose influence on priming processing model, thus to make people adopt "psychological shortcut" to a large extent in cognitive processing, i.e. acquiring knowledge through intuition and previous experience, which will reduce the information processing time and consumption, but also will make individuals be likely to have cognitive bias, incurring some negative effects on decision-making (Sun *et al.*, 2007). In addition, some studies indicate that positive affect can improve individual's awareness of external environment, so compared with the person experienced negative affect, the person experienced positive affect would have comprehensive and broad cognition of events and stimuli. Welpe *et al.* found that affect will have influence on the recognition and evaluation of opportunities by individuals. Specifically speaking, the feeling of fear will reduce the development and utilization of opportunities, and minimize the evaluation and utilization of opportunities; while happiness and anger will increase the development and utilization of opportunities, and improve the evaluation and utilization of opportunities. Positive affect will support entrepreneurs' persistence (Houser & Sheldon, 2006; Pham, 2004; Baron, 2008). Therefore, it can be speculated that positive affect will induce high level of escalation of commitment.

Meanwhile, some studies indicate that individual's negative affect has significant negative correlation with escalation of commitment, and people would try to avoid hard feelings in the context of escalation of commitment (Kin, Michelle & Jessica, 2006). That is to say, in the context of escalation of commitment, individual will take anticipated regret into consideration during decision-making to avoid regret. The study conducted by Kin (2006) indicates that nervousness has significant negative correlation with escalation of commitment, and highly neurotic individuals are relatively less likely to develop escalation of commitment, for they have low tolerance for negative emotion and negative situation. Barbalet (1996) put forward that in case of poor performance, positive affect will make decision-makers to accept current situation more easily, and believe that the difficulty can be overcome and the results are favorable. Therefore, we have good reasons to assume that affect will have influence on escalation of commitment:

*H1:* The individual's escalation of commitment will be impacted by various affects, and the people with negative affect are more tend to escalation of commitment than people with positive affect.

The escalation of commitment is also influenced by personality factor, and the personality variable is positively related to the intent of escalation of commitment (Sun *et al.*, 2006). Where the risk-taking personality and self-esteem level have more significant influence on escalation of commitment, and the managers with high risk propensity and self-esteem level are more tend to escalation of commitment. Some studies suggest that people with high self-esteem level have more resources to maintain their positive image, and would relieve the negative impact incurred by failure through external attribution method, and would not worry about the embarrassment incurred by admitting fault in decision-making, so they may withdraw from failing situation in a timely manner and are less likely to develop escalation of commitment. However, some studies suggest that in face of threats to self-esteem (i.e. receiving the failure feedback), the individuals with low self-esteem level are more likely to adopt self-esteem protection polices, conduct rational internal attribution analysis and choose risk avoidance; while individuals with medium and high self-esteem level are more likely to exchange for self-esteem with money, resulting in risk propensity. Zhong *et al.* conducted the monetary auction experiment and found that in the context of benefit, individuals with medium self-esteem have high risk propensity and are more likely to take risks, which has been further verified by He (2015). Therefore, this article assumes that compared with entrepreneurs with low self-esteem level, entrepreneurs with high, medium self-esteem level are more tend to escalation of commitment, and the escalation of commitment of the entrepreneurs with medium self-esteem level is more obvious.

*H2:* Self-esteem level has influence on escalation of commitment, and compared with individuals with low self-esteem level, individuals with medium, high self-esteem level are more tend to escalation of commitment.

*H3:* There is interaction between affect and self-esteem level in imposing impact on escalation of commitment. Most of previous studies are focused on the escalation of commitment of two extreme groups with high self-esteem level and low self-esteem level, but the comparative study on that of group with medium self-esteem level is rarely conducted. However, the normal distribution results show that in fact, entrepreneurs with the medium self-esteem level, accounting for the largest proportion in the population, are a very important group of which the influence cannot be ignored, and some practical studies show that there is difference in risk decision-making among entrepreneurs with medium self-esteem level and entrepreneurs with high, low self-esteem level. Therefore, entrepreneurs with medium self-esteem level were investigated in this study to check whether there is any difference among them and other self-esteem level groups. The subjects of this study are entrepreneurs. In this study, entrepreneurs with rich experience are selected as subjects, which have better external validity.

## 2. Methodology

*2.1 Design of experiment:* The between-subjects design of 3 (self-esteem level: high/ medium/ low)  $\times$  2 (emotion: pleasure/ depression) was adopted with the dependent variable of escalation of commitment, i.e. the possibility that an entrepreneur is willing to invest continuously in a specific circumstance.

*2.2 Subjects:* In order to screen out appropriate subjects, 82 entrepreneurs volunteering for this experiment were invited to have the Rosenberg self-esteem scale test, and 70 copies of valid data were obtained. The entrepreneurs with top 27% of self-esteem scores were deemed as entrepreneurs with high self-esteem level, the entrepreneurs with the last 27% of self-esteem scores were deemed as entrepreneurs with low self-esteem level, and the remaining 46% of entrepreneurs were deemed as entrepreneurs with medium self-esteem level. Entrepreneurs from difference self-esteem levels were selected randomly for further experiment. The between-subjects design of pleasure and depression was adopted for each self-esteem level, and the entrepreneurs were divided into 6 groups with 10 subjects in each group, totally 60 subjects are selected for the experiment (26 male subjects, 34 female subjects).

### 2.3 Materials and tools

#### 2.3.1 Self-esteem scale

The self-esteem scale (hereinafter referred to as SES) prepared by Rosenberg (1965) was adopted. The SES is the self-esteem scale that is widely used at home and abroad, of which the reliability is relatively high. The scale is consisted by 10 questions with 4 scores for each question and totally 40 scores, which will be completed through self-assessment, and the higher the scores, the higher the self-esteem level is. In this experiment, the subjects were informed that this scale is an “entrepreneur psychological questionnaire”. It has been verified that the coefficient of internal consistency of this scale in this experiment is  $\alpha=0.823$ .

#### 2.3.2 Emotion inducing tool:

The previous studies show that videos, gifts, pictures, music, self-emotional reports, stories and the like can induce affect successfully (Siemer & Reisenzein, 1998; Mittal & Ross, 1998; Niedental, Halberstadt & Setterlund, 1997; Forgas, 1994). Since the subjects of this experiment are entrepreneurs with rich life experience, it is more effective to induce the affect by the method of bringing back their entrepreneurial experiences. In this experiment, the subjects of Pleasure Group were required to recall a happy experience in entrepreneur process, and write the event process and the emotional state at that time on the questionnaire or describe them orally in details; on the contrast, the memory of depressing experience was adopted in the Depression Group as the materials for emotional induction.

#### 2.3.3 Positive and Negative Affect Schedule (PANAS)

The Positive and Negative Affect Schedule (PANAS) in Chinese version of Watson *et al.* (1988) was adopted, where the internal consistency reliability of positive affect schedule and negative affect schedule are 0.85, and 0.84 respectively, which means that the reliability is high. The schedule is consisted by 18 adjectives describing emotion, where 9 adjectives for positive affect and 9 adjectives for negative affect. The subjects are required to assess the affects experienced by 5-point measurement method, where “1” indicates that little or even no affect was experienced, “5” indicates that strong affect was experienced.

#### 2.3.4 Scale for intent of escalation of commitment

The entrepreneurs’ intents of escalation of commitment were measured in uncertain scenarios, for which two scenarios were set, where in Scenario I, the “credit questionnaire” designed by Stephen. B. Salter & David. J. Sharp (2001) and has been verified in previous studies was adopted; but since the “credit questions” are more professional, the materials used in Scenario II were compiled by referencing to the research paradigm of escalation of commitment in the “credit questionnaire” to establish the scenario of “hotel investment”. The possibility that subjects are willing to invest continuously was investigated in both scenarios, for which the 5-point measurement method is adopted, where “1” indicates that it is almost impossible to invest continuously, and “5” indicates that it is very likely to invest continuously, the higher the scores, the stronger the subjects’ intent of continuous investment is, and the higher the degree of escalation of commitment is. Before the experiment, 30 university students were selected to have trial testing, and the results show that different levels of escalation of commitment does happen in the scenarios.

### 2.4 Experimental procedure

Firstly, let each subject complete the self-esteem level test independently, and divide them into different self-esteem level groups according to measured scores. Then, select subjects randomly from them for experiment of escalation of commitment. The Pleasure Group will be given a gift before experiment (the Depression Group will be given after the experiment).

Then, after inducing the affect by bringing back their experiences, require the subjects to have the situation test of escalation of commitment immediately, in which the subjects will acting as the investor in the scenario to

make decisions on continuous investment of funds.

Finally, require the subjects to have self-evaluation of affect by using the positive and negative affect schedule (PANAS), and since previous studies show that reporting emotional state after emotional induction will have impact on results of next experiment, the method of post assessment of affect is adopted in this study to minimize error.

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## 3. Consequences

### 3.1 Emotional induction effects

The variance analysis was conducted by taking the positive or negative entrepreneurial experience recalled

Table 1 The average value and standard deviation of scores of affects induced in two memory scenarios

Emotion	Recalling pleasant experience	Recalling depressing experience
Pleasure	29.07 (8.36)	21.46 (8.29)
Depression	15.64 (7.88)	23.32 (6.17)

by subjects as the independent variable, and the scores of pleasure or depression measured with PANAS scale as the dependent variable, and the result show that  $F_{PA}(1, 69) = 14.119, p < 0.001$ ;  $F_{NA}(1, 69) = 19.04, p < 0.001$ , which indicates that the emotional induction in this experiment is effective.

### 3.2 Influences of affect and self-esteem level on entrepreneurs’ escalation of commitment

Table 2 The average value and standard deviation of levels of escalation of commitment in each experiment condition

Emotion	Self-esteem level		
	High self-esteem level (n=20)	Medium self-esteem level (n=20)	Low self-esteem level (n=20)
Pleasure (n=30)	5.67 (0.50)	6.84 (0.46)	5.56 (0.65)
Depression (n=30)	5.60 (0.86)	6.93 (0.54)	6.20 (0.61)

The homogeneity test for variance show that the variances of all the data in the experiment are

homogeneous. In this experiment, the one-way analysis of variance was conducted by taking affect and self-esteem level as the independent variables and the escalation of commitment as the dependent variable, and the results show that the main effect of affect is not significant,  $F(1, 55) = 0.27, p = 0.068$ , which indicates that  $H1$  is false; the main effect of self-esteem level is not significant,  $F(2, 54) = 2.809, p = 0.068$ ; the interaction between affect and self-esteem level is not significant,  $F(2, 54) = 0.238, p = 0.789$ , which indicate that  $H3$  is false; the parities comparison show that the escalation of commitment is significantly higher for the group with medium self-esteem level than group with high self-esteem level,  $p=0.046$ , while the groups with medium self-esteem level and low self-esteem level have the marginal significance,  $p=0.067$ , and there is no significant difference between groups with high self-esteem level and low self-esteem level,  $p=0.779$ , which indicates that the  $H2$  is partially justified.

Then, the experimental data was further analyzed, and the results show that there is no significant difference in escalation of commitment between the genders,  $F(1, 58) = 0.294, p = 0.590$ , no significant difference in escalation of commitment among entrepreneurs of different ages,  $F(3, 56) = 0.566, p = 0.639$ , and no significant difference in escalation of commitment among entrepreneurs in different industries and with difference working experiences,  $F(4, 55) = 1.861, p = 0.128$ ;  $F(4, 55) = 1.040, p = 0.393$ .

#### 4. Conclusions

This study shows that the main effect of entrepreneurs' affect is not significant, the influences of positive and negative affect on escalation of commitment are not significant; there is significant difference in escalation of commitment among entrepreneurs with medium self-esteem level and high self-esteem level, and there is marginal significance between entrepreneurs with medium self-esteem level and low self-esteem level, which indicates that the escalation of commitment will be higher for entrepreneurs with medium self-esteem level than entrepreneurs with high, low self-esteem level. The results of the study conducted by Kin *et al.* (2006) show that negative affect and nervousness have significant influences on escalation of commitment, and the study conducted by Liu Yongfang *et al.* (2010) shows that under the loss framing, pleasure will incur greater risk preference than sadness, both of which are not obtained in this study. The result that the influences of entrepreneurs' affect are not significant may be caused by the following reasons: firstly, differences in emotional induction, in previous studies, the fixed situational materials were adopted to induce affect, while in this study, entrepreneurs were required to recall their positive or negative experiences and report positive, negative affect. But in actual, the experience of entrepreneurs cannot be measured only by positive and negative affect, most of which are mixed emotion and affective ambivalence. Different affects would have different influences, and even the equivalent affects would have different influences; taking the anger and sadness in negative affect as an example, anger will induce entrepreneurs' escalation of commitment, while the sadness will suppress the escalation of commitment. Therefore, in future studies, the subjects' affect shall be specifically controlled, and various affects shall be tested after emotional induction to explore the influences of various affects and mixed emotions. Secondly, the subjects of this study are mostly consisted by small and medium size entrepreneurs or entrepreneurs in early period of entrepreneurship who has little investment fund, and has less experience of sunk investment cost, this may have influence on the results of study. Thirdly, research environment, since the subjects are entrepreneurs, the studies are mostly conducted during business time and cannot be conducted in laboratory setting, so it is difficult to ensure the unified experimental environment.

In terms of self-esteem, the conclusions of this study are inconsistent with the results of the study conducted by Liu Yongfang *et al.* (2013), which may be incurred by difference in status of entrepreneurs. Additionally, the judgment of entrepreneurs may be influenced by their entrepreneurial experience to a large extent, and it is found in the study that the entrepreneurs who have just experienced failure would have lower level of escalation of commitment regardless of emotional state, even if the self-esteem level is high, and when they are aware of the potential threat of cost sinking, they will develop priming processing to directly deny continuous investment. Therefore, the study result that "the influences of entrepreneurs' affect and self-esteem on escalation of commitment are not significant" shall be further verified in the future studies by improving the measuring method continuously.

It is concluded in the study that the escalation of commitment is higher for entrepreneurs with medium self-esteem level than entrepreneurs with high self-esteem level, which is consistent with the expected hypothesis. There is certain risk-taking behaviors in the context of escalation of commitment, which are generally taken as an expression of ability, through which individuals with medium self-esteem level can benefit from risk-taking behavior and gain self-esteem. In addition, feedback was obtained through interview with some subjects in the experiment, which shows that when competitors appeared in the "hotel investment scenario", the subjects would feel angry and unwilling, making them more tend to invest continuously to gain self-esteem.

As an irrational cognitive deviation, escalation of commitment is likely to have adverse effect on entrepreneurs' investment results. And previous theories show that the escalation of commitment can be controlled in the following three ways. Firstly, analyze the project and make accurate psychological budget for

each step of investment; decision-makers shall consider and compare the advantages and disadvantages of the implementation scheme in detail before making decisions. Secondly, set the minimum performance standards and psychological budgets to increase decision-makers' acceptance of negative results and reduce their fear of failure. Where, psychological budget has negative effect on entrepreneurs' persistence, and when the investment reaches a certain level, the previous detailed psychological budget would restrain escalation of commitment (Niu *et al.*, 2012). Thirdly, pay more attention to the results and responsibilities of decision-making, and provide accurate feedback of the initial investment results.

## 5. Shortages and prospects

This study has enriched the studies on escalation of commitment to certain extent, but there are still some shortages:

Firstly, the subjects are mainly consisted by middle and small size entrepreneurs, and are mostly concentrated in central region, which may has regional difference with the first, second-tier cities with higher economic level. The diversity of subjects shall be improved in future studies. Additionally, the differences in decision-making between emerging entrepreneurs and serial entrepreneurs will be further discussed.

Secondly, the situation test method was adopted in this article, for which limited condition factors were included. But in fact, the entrepreneurs will face a complex and changing environment, the design of experiment may be different from the real scene. Therefore, the method of behavioral experiment will be adopted for investigation in future studies.

Thirdly, in terms of self-esteem level, only explicit self-esteem was controlled and measured in this study, but in fact, implicit self-esteem may also have significant effect, so the implicit self-esteem test (AIM) may be further intervened.

Fourthly, in terms of control of affect, affect is divided into positive and negative affect in this article, but in fact, entrepreneurs' decision-making is mostly impacted by mixed emotions and affective ambivalence. In addition, the equivalent affects may have different influences, for example, anger in negative affect may lead to the risk propensity of decision-making, while sadness may suppress the risk propensity; and hope and happiness in positive affect may also have different influences. Therefore, affect shall be controlled in future studies. The influences of different affects and mixed emotions on entrepreneurs' escalation of commitment shall be further investigated.

## References

- Braxton, C. C. , Robinson, C. N. , & Awad, S. S. . (2017), "Escalation of commitment in the surgical icu", *Critical Care Medicine*, 45(4), e433.
- Feldman, G. , & Kfe, W. (2018), "When action-inaction framing leads to higher escalation of commitment: a new inaction-effect perspective on the sunk-cost fallacy", *Psychological Science*, 29(4), 956797617739368.
- Feldman, G., & Kfe, W. (2018), "When action-inaction framing leads to higher escalation of commitment: a new inaction-effect perspective on the sunk-cost fallacy", *Psychological Science*, 29(4), 956797617739368.
- Jessica Y. Y. Kwong & Kin Fai Ellick Wong. (2014), "Reducing and Exaggerating Escalation of Commitment by Option Partitioning.", *Journal of Applied Psychology*, 99(4), 697–712.
- Kalmanovich-Cohen, H. , Pearsall, M. J. , & Christian, J. S. . (2018), "The effects of leadership change on team escalation of commitment", *The Leadership Quarterly*, S1048984316302636.
- Kin Fai Ellick Wong & Jessica Y. Y. Kwong. (2007), "The Role of Anticipated Regret in Escalation of Commitment", *Journal of Applied Psychology*, 92(2), 545-554.
- Kin Fai Ellick Wong, Michelle Yik & Jessica Y. Y. Kwong. (2006), "Understanding the Emotional Aspects of Escalation of Commitment: The Role of Negative Affect", *Journal of Applied Psychology*, 91(2), 282-297.
- Mayberry, R. , Boles, J. S. , & Donthu, N. (2018), "An escalation of commitment perspective on allocation-of-effort decisions in professional selling", *Journal of the Academy of Marketing Science*, 46(5), 879-894.
- Niu Fang, Zhang Yuli, Yang Jun. Persist or Exit (2012), " A Study of the Escalating Commitment of Nascent Entrepreneurs Based on the Prospect Theory [J]", *Nankai Business Review*, 15(1),131-141
- Robert A. Baron. (1998) , "Cognitive mechanism in entrepreneurship: why and when entrepreneurs think differently than other people," *Journal of Business Venture*, 13, 275-294.
- Stephen.B.Salter & David.J.Sharp.(2001), "Agency effects and escalation of commitment Do small national culture differences matter? " *The International Journal of Accounting*,36,33-45.
- Sun Yan, Li Shu, & Yin Xiaoli. (2007), "Two Systems in Decision-making and Reasoning: Heuristic System and Analytic System", *Advances in Psychological Science*, 05:721-726
- Vergo, M. T. , Cullinan, A. M. , & Wilson, M. (2018), "The paradigm of escalation of commitment in treatment decisions near the end of life", *JAMA Oncology*.
- ZHONG Yilu, LIU Yongfang (2010), "Risk Preferences in Monetary Auction Tasks: The Roles of Self-esteem Levels and Genders.", *Acta Psychologica Sinica*, 03, 317-324.