International Journal of Accounting and Financial Reporting
ISSN 2162-3082
2023, Vol. 13, No. 1

Study on the Influence of Failure Learning on the Performance of Start-ups

Amenawo Rastogi

Benue State University Makurdi, Gboko Road, Benue State, Nigeria

Received: February 5, 2023 Accepted: March 2, 2023 Published: March 15, 2023

doi: 10.5296/ijafr.v13i1.21585 URL: https://doi.org/10.5296/ijafr.v13i1.21585

Abstract

Many entrepreneurs have failed at one time or another. Entrepreneurs need to reflect on the failure and summarize the experience in time, so as to accumulate useful information for the second venture. Based on entrepreneurial learning theory and cognitive dissonance theory, this paper takes 258 entrepreneurial teams in the Yangtze River Delta as research objects, explores the impact of entrepreneurial failure learning on entrepreneurial performance, and verifies the moderating effects of ascending counterfactual thinking and descending counterfactual thinking. The results show that entrepreneurial failure learning has a significant positive impact on the performance of new ventures. Upward counterfactual thinking positively moderates the relationship between failure learning and entrepreneurial performance, but downward counterfactual thinking has no significant moderating effect between failure learning and entrepreneurial performance. After the downward counterfactual thinking is added, the triple interaction effect is significant, that is, the upward counterfactual thinking and the downward counterfactual thinking jointly positively regulate the relationship between failure learning and entrepreneurial performance.

Keywords: Failure to learn, Entrepreneurial performance, Ascending counterfactual thinking, Downward counterfactual thinking

1. Introduction

The Global Entrepreneurship Watch (GEM) report shows that China's entrepreneurship index (CPEA) has been rising in recent years, especially in 2014, China's CPEA index even exceeded the United States, the United Kingdom, Japan and other countries. However, in the situation of increasing entrepreneurship rate year by year, we have to face the high failure rate and low growth rate of new enterprises. According to the data published by Fortune, 70% of the world's start-ups have not crossed the "death trap", compared with other countries, the success rate of new enterprises in China is only 10%, and the average survival time is less than 3 years. "Failure is the mother of success" has always been regarded as the golden rule,

90% of entrepreneurial failures are more informative than 10% of entrepreneurial successes. It can be seen that there is an inseparable relationship between success and failure, and entrepreneurs are good at learning from the experience of failure has become an important condition for new ventures to succeed. Although entrepreneurial failure is a very common economic phenomenon, most scholars still have "success bias" in the theoretical research stage. They focus on successful entrepreneurial cases and try to find out the universal law of entrepreneurial success. Most of these scholars hold a pessimistic cognition of entrepreneurial failure, believing that the experience of failure will greatly damage the self-confidence of entrepreneurs, affect their mental health level, and then weaken their subsequent entrepreneurial motivation, which is not conducive to the follow-up development of entrepreneurial activities and the improvement of entrepreneurial performance. The main reason is that some entrepreneurs lack a correct understanding of entrepreneurial failure, and fail to sum up their failure experience and obtain useful information and lessons from it when they fail for the first time, and even are unwilling to face up to their failure. In contrast, many experienced entrepreneurs are good at learning from failures and proactively learning from them to avoid repeating them.

Compared with mature enterprises, most new enterprises are facing the dual dilemma of "new weak" and "small and weak", once the business fails, the destructive power of entrepreneurs and even enterprises is fatal. Many entrepreneurial practices show that entrepreneurial failure is not terrible. Entrepreneurs should dare to face up to failure, regard failure as an important learning opportunity and entrepreneurial resource, keenly discover and make use of entrepreneurial opportunities, objectively and rationally assess entrepreneurial risks, take the initiative to review their own behaviors and adjust corresponding strategies. In this way, entrepreneurial failure will not only weaken the entrepreneur's subsequent entrepreneurial willingness, but also improve the entrepreneurial performance of the enterprise. And then improve the survival probability of new enterprises. In recent years, some scholars have begun to pay attention to the study of entrepreneurial failure, and the research focus on entrepreneurial failure has also shifted from the front end of entrepreneurship to the back end, and began to pay attention to the behavior of entrepreneurs after failure, especially the positive impact of learning behavior after failure on subsequent entrepreneurial activities. Existing literature mainly conducts exploratory studies on the content, mode and process of entrepreneurial failure learning, and most of them focus on the analysis of failure learning in mature organizations, while few scholars pay attention to a series of learning behaviors of start-ups in the context of entrepreneurial failure and their impact on subsequent performance. The influence of failure learning behavior on corporate performance and its internal mechanism are still unclear, and further research is needed. Therefore, it is of great theoretical and practical significance to explore the impact of failure learning on the performance of innovative enterprises and its mechanism.

At the same time, the essence of entrepreneurial activities is "a subjective view of the objective activity", to a certain extent, it will be affected by the thinking of the main body of entrepreneurship, the difference in thinking mode will directly affect the behavior and performance of entrepreneurs, is the key factor to determine the success of entrepreneurial

enterprises. Therefore, some scholars turn their research focus to entrepreneurial thinking, believing that successful entrepreneurs have different cognition and thinking about the entrepreneurial environment with high uncertainty and scarce resources, and this unique cognition and thinking makes the inherent law of entrepreneurial activities seem to be trackable. Entrepreneurs have formed a set of unique thinking patterns and behavior rules embedded in the entrepreneurial context, thus improving the success rate of entrepreneurial activities. The deviation between the entrepreneur's psychological expectation and the actual result (such as entrepreneurial failure) is very easy to induce the psychological simulation of counterfactual thinking, and counterfactual thinking is a form of cognitive bias, which can help the entrepreneur to reconstruct the original wrong cognition and thinking. Baron has found that startup failures are more likely to develop counterfactual thinking than successful entrepreneurs because it helps them recover and learn from failures. It can be seen that counterfactual thinking plays a huge role in the context of entrepreneurial failure. At present, most studies on counterfactual thinking focus on the impact on entrepreneurs' emotions, self-esteem, self-efficacy, opportunity recognition and behavior, and lack a certain systematicness. Moreover, few scholars pay attention to the impact mechanism of micro-level factors such as individual thinking on entrepreneurial performance. Wright and Stigliani point out that to explore business performance and entrepreneurial growth from a cognitive perspective, we need to examine the mechanism of counterfactual thinking in the context of entrepreneurial failure. Therefore, it is urgent to establish a comprehensive theoretical analysis framework including failure learning, individual thinking and entrepreneurial performance to make up for the shortcomings of existing research.

Based on the above analysis, this paper introduces counterfactual thinking in the field of psychology into the study of failure learning, compares the effects of counterfactual thinking in different directions on failure learning and entrepreneurial performance, and explores the individual thinking factors of entrepreneurs that enhance the performance of start-ups and the impact of entrepreneurial failure learning on the performance of start-ups. An integrated theoretical model of failure learning, counterfactual thinking and startup performance is constructed. The research results of this paper will further deepen the research of counterfactual thinking in the field of entrepreneurship, broaden the research depth and breadth of counterfactual thinking, further improve the failure learning theory, and provide guidance and reference for the entrepreneurial management practice of enterprises.

2. Theoretical Analysis and Research Hypothesis

2.1 An Analysis of the Main Effects of Failure Learning and Startup Performance

Entrepreneurial performance can not only measure the success of enterprises, but also test the effectiveness of entrepreneurial strategies. Factors that affect entrepreneurial performance mainly include environment and opportunity, resources, strategy, entrepreneurs/entrepreneurial teams, etc. Most of the existing studies focus on exploring which factors have a positive effect on entrepreneurial performance. However, a fact that cannot be ignored is that entrepreneurial failures abound, and most successful entrepreneurs have encountered failures in the process of entrepreneurship. The negative feedback (such as

setbacks and failures) brought by entrepreneurial failures will bring greater psychological impact to entrepreneurs, and will stimulate individuals to affect enterprise performance through the correction of certain behaviors.

Business failure is not the only form of entrepreneurial failure, entrepreneurial failure can also refer to the deviation between the expected goal and the final result in the process of entrepreneurship. Stokes *et al.* found that while prior entrepreneurial experience is important, entrepreneurs who are good at learning from failure are more likely to succeed. In the face of a series of impacts brought by entrepreneurial failure, entrepreneurs with strong learning ability have higher alertness, stronger opportunity identification and operation management ability, good at self-reflection and learning of failure experience, change the original thinking mode, can objectively evaluate the advantages and disadvantages of themselves and the enterprise, rationally analyze the reasons for failure, adjust and optimize the original strategic decision. Improve the matching degree between the decision scheme and the external dynamic environment, minimize the loss caused by mistakes as much as possible, so as to obtain differentiated competitive advantages. It can be seen that entrepreneurial activities themselves are a process of continuous trial and error, and failure learning is conducive to the continuous revision of new ventures' behavior through reflection after failure, so that entrepreneurs pay more attention to the process of failure rather than the result, so as to implement strategic performance plans conducive to the long-term development of enterprises, and finally achieve the long-term goal of improving corporate performance.

Wang Huafeng *et al.* found that excessive failure degree and frequency will have irreversible negative effects on the psychology of entrepreneurs, thus inhibiting individual failure learning, while moderate failure can enhance the confidence and courage of entrepreneurs, which is conducive to their effective failure learning. At this time, a large amount of information and knowledge generated by failure can be transformed into useful strategic resources for enterprises, and ultimately improve the success rate of entrepreneurship. At the same time, failure learning is future-oriented, and it is a dynamic process of resource accumulation and creation. Entrepreneurs can create new knowledge through different optimal allocation of resources. The continuous updating of knowledge is conducive to enhancing the innovation ability of enterprises and promoting entrepreneurs to accumulate experience in coping with crises and extreme problems. To improve the organization's crisis response ability through efficient failure situation learning is conducive to the subsequent growth of start-ups, especially the dual learning after failure can greatly improve the growth performance of start-ups. It can be seen that moderate failure can stimulate entrepreneurs' efficient learning level, and "planned failure learning" has higher value, enabling entrepreneurs to obtain unique entrepreneurial ability, thus transforming adversity into a new competitive advantage, and ultimately improving enterprise performance.

Based on the above analysis, this paper proposes the following hypothesis:

H1: Failure learning can improve the entrepreneurial performance of new ventures.

2.2 Analysis of the Moderating Effect of Counterfactual Thinking

Counterfactual thinking includes ascending counterfactual thinking and descending counterfactual thinking. Upward counterfactual thinking, also known as the "upward hypothesis," is the assumption that there is another situation that would make the current outcome better. Downward counterfactual thinking, also known as "downward assumptions," is the practice of assuming that an alternative scenario would make the current outcome worse. After the failure of entrepreneurship, entrepreneurs usually do not immediately summarize the failure experience and carry out learning activities, but need a period of time for emotional repair and thinking precipitation. This shows that failure learning is not a skill that entrepreneurs are born with, but something that is acquired. Therefore, what kind of thinking mode entrepreneurs adopt after failure has a great impact on the learning effect, and the emotional recovery after failure and the training of learning skills are of great significance to the acquisition and transformation of failure information. Entrepreneurs may use counterfactual thinking to zero the existing entrepreneurial results, and then through the psychological simulation process of causal reasoning or causal attribution, imagine whether the entrepreneurial results will change if they take different behaviors or the entrepreneurial environment is different, which is a thinking activity of post-judgment and decision-making. When entrepreneurs compare the results that have occurred with the previously assumed ideal results, form different directions of comparison, construct new events after re-thinking in the mind, form two different types of thinking modes of upward counterfactual thinking and downward counterfactual thinking, thus producing different emotional experiences. Therefore, entrepreneurs with different types and structures of counterfactual thinking may have different regulatory directions and intensity on the relationship between failure learning and startup performance. Based on the above analysis, this paper will discuss the upward counterfactual thinking, downward counterfactual thinking and their synergistic regulation separately.

2.2.1 An Analysis of the Moderating Effect of Ascending Counterfactual Thinking

Roese and Olson suggest that, compared with individuals who are good at using downward counterfactual thinking, subjects who use upward counterfactual thinking have stronger ideas about improving their action plans and are more sensitive to negative information such as the cost of failure. It can be seen that entrepreneurs who adopt upward counterfactual thinking are more likely to show high-level construction in the process of self-regulation, re-deconstruct and analyze past events, promote experiential learning, think about the causes of failure, and adopt strategies to meet their own growth and future enterprise development. At the level of coping with new disadvantages, entrepreneurs can reflect on past mistakes through upward counterfactual thinking, make positive adjustments on the basis of the original thinking mechanism and psychology, change the original thinking mode, and construct the collected feedback information into a new action plan through failure learning, so as to improve their own behavior and improve the performance of entrepreneurial enterprises.

On the one hand, when there are negative events, the frequency of use of upward

counterfactual thinking is higher than that of downward counterfactual thinking, which tends to induce entrepreneurs to produce a lot of negative emotions, such as regret and shame. Although negative emotions can weaken the psychological pleasure and satisfaction of entrepreneurs, the negative emotions generated by upward counterfactual thinking usually play a positive role in the entrepreneurial event itself, so that entrepreneurs can increase their vigilance and make adequate preparations for similar events in the future, and enhance their overall control ability of such events, which is conducive to the modification of subsequent behaviors and improvement of performance.

On the other hand, according to the cognitive dissonance theory, when entrepreneurs recall the previous failure experience, there will be a deviation between the actual result and the expected goal, thus forming cognitive dissonance. Negative emotions such as reluctance and regret generated by upward counterfactual thinking will stimulate entrepreneurs to deeply reflect on the failure event, and this kind of thinking will help entrepreneurs to carry out double-loop learning under the failure situation. The balance of self-cognition is achieved through post-judgment and subsequent behavior adjustment, which lays the foundation for changing the existing results. Based on the results of previous experience and reflection after failure, entrepreneurs use psychological simulation to establish connections between various complex situations and diverse results, revise their own cognitive mode, take the initiative to evaluate the worst result that may be brought by some action plans, analyze and compare it with their own affordability, and constantly improve the action plan to make decisions if it is within the affordability range. If you can't afford the consequences, give up the opportunity. This psychological simulation greatly reduces the risk brought by entrepreneurial activities and improves the possibility of success of entrepreneurial activities. It can be seen that in a complex entrepreneurial environment, individuals who adopt upward counterfactual thinking can more effectively identify and evaluate innovation and entrepreneurial opportunities, and obtain valuable feedback information from failure situations, thus improving the efficiency of failure learning.

Based on the above analysis, this paper proposes the following research hypotheses:

H2a: Upward counterfactual thinking positively moderates the relationship between failure learning and entrepreneurial performance.

2.2.2 An Analysis of the Moderating Effect of Downward Counterfactual Thinking

Existing studies have shown that the negative impact on the psychology of entrepreneurs is actually not the objective loss caused by failure, but the negative emotions caused by the excessive interpretation of failure by entrepreneurs' subjective consciousness. Downward counterfactual thinking assumes that a certain situation will produce worse results than the established facts, thereby reducing the psychological burden of entrepreneurs. Make them feel a certain degree of satisfaction and happiness for the current situation, which can offset the depressed mood caused by entrepreneurial failure. Downward counterfactual thinking is essentially an emotional repair strategy, which helps to stimulate the positive emotions of entrepreneurs and make individuals feel more comfortable, thus enhancing the confidence of second entrepreneurship and improving the performance of new ventures. On the one hand,

when the subjective psychological cost or objective actual loss of entrepreneurs far exceeds the expectation, the negative emotions such as anger, shame and anxiety brought by entrepreneurial failure will interfere with their acquisition, processing and handling of failure information to a large extent. They often reconstruct the meaning of failure experience from the perspective of failure cost, which is not conducive to the collection and activation of cognitive resources. Weaken the learning process of self-reflection. According to the DownwardComparisonTheory, when faced with negative events such as entrepreneurial failure, entrepreneurs adopt downward counterfactual thinking, which is conducive to the maintenance of self-esteem, self-confidence and self-efficacy. Entrepreneurs with downward counterfactual thinking are more likely to construct a low level of psychological distance, use a short-term perspective to carry out specific and detailed local analysis of recent failures, and obtain self-comfort by imagining worse results that may occur. The improvement of emotions is conducive to stimulating self-reinforcement motivation of entrepreneurs. However, the task switching speed under positive emotions is faster than that under negative emotions, which is conducive to reducing frustration and quickly entering new work with a positive attitude, thus promoting the improvement of entrepreneurial performance. On the other hand, according to the theory of extension and expansion of positive emotions, entrepreneurs' timely recovery from failure emotions can effectively divert attention, change the scope of cognition, and change the way of thinking, so as to enhance the psychological energy of entrepreneurs, and then stimulate entrepreneurs to carry out more active entrepreneurial exploration and more efficient failure learning. It can be seen that the positive emotions induced by downward counterfactual thinking can promote entrepreneurs to pursue new and unique creative thinking modes in the context of failure, and adopt more rapid and flexible handling strategies for emergencies in the process of entrepreneurship, which is conducive to improving entrepreneurial motivation and corporate performance.

Based on the above analysis, this paper proposes the following research hypotheses:

H2b: Downward counterfactual thinking positively moderates the relationship between failure learning and entrepreneurial performance.

2.2.3 Analysis of Synergistic Regulation of Ascending Counterfactual Thinking and Descending Counterfactual Thinking

The success of entrepreneurial activities is the result of complex environment and individual entrepreneurial behavior. Failure learning, as the most effective coping strategy in failure situations, can promote entrepreneurs to transform the cost of failure into investment in success. Based on the theory of cognitive dissonance, in a failure situation, entrepreneurs can not only reflect on the failure event and modify behavior through upward counterfactual thinking, but also carry out emotional recovery and cognitive adjustment through downward counterfactual thinking. If the two modes of thinking are combined, it is more conducive to the improvement of enterprise performance. Specifically, the psychological simulation of entrepreneurs can be divided into the following four situations:

In the first case, low ascending counterfactual thinking and low ascending counterfactual thinking. In the face of entrepreneurial failure, if entrepreneurs are not good at using

counterfactual thinking to reconstruct the meaning of entrepreneurial failure process, it is difficult to obtain valuable experience from failure learning, which is not conducive to the accumulation of knowledge and the improvement of skills, and it is easy to repeat the mistake in similar places. Repeated failures will make entrepreneurs lose their sense of self-identity, causing irreparable psychological and economic losses, thus reducing their entrepreneurial motivation and action, which is not conducive to the improvement of entrepreneurial performance.

The second case is low ascending counterfactual thinking and high descending counterfactual thinking. This type of mental simulation helps entrepreneurs quickly repair negative emotions and quickly engage in subsequent failure learning. However, the lack of upward counterfactual thinking and the excessive blind view of the entrepreneurial environment can easily cause entrepreneurs to have stubborn prejudice, unwilling to break the original cognitive mode, unable to deeply process the failure information, which is not conducive to the formation of useful knowledge for the subsequent development of the enterprise, and it is difficult to improve the enterprise performance.

In the third case, high counterfactual thinking and low counterfactual thinking. The negative emotions generated by high counterfactual thinking are conducive to entrepreneurs' reflection and learning, and to draw lessons from the failure experience, but the high cost of failure will cause a huge blow to the self-esteem, happiness and self-efficacy of entrepreneurs. At this time, entrepreneurs who lack emotional repair ability will be difficult to recover from the grief of failure, and it is difficult to concentrate on obtaining valuable information from the failure event, which may affect the smooth progress of subsequent entrepreneurial activities, and then have a negative impact on enterprise performance.

The fourth case is high ascending counterfactual thinking and high descending counterfactual thinking. This psychological simulation helps entrepreneurial subjects recover quickly from the negative emotions of failure, cope with the failure event with the best learning state, and then acquire more tacit knowledge through self-reflection and experiential learning of others, improve opportunity identification ability and business management ability, and thus increase the possibility of enterprise performance improvement.

3. Research Design

3.1 Sample Selection and Data Collection

The research samples of this paper come from 258 startups in business incubators in the Yangtze River Delta region, mainly covering Shanghai, Nanjing, Suzhou and Hangzhou, and the research objects are all backbone members of the entrepreneurial team of new startups. Chrisman and Hofer define the time standard of new startups should be less than or equal to 8 years, therefore, participating in this survey of new startups were established within 8 years, and the surveyed have at least one recent entrepreneurial failure experience. This paper collected data by a combination of field interviews and questionnaires. All subjects participated in this survey by filling out questionnaires anonymously. The survey lasted for 3 months from August 2018 to October 2018. A total of 300 questionnaires were sent out, and

42 invalid questionnaires were excluded, resulting in 258 valid questionnaires, with an effective questionnaire recovery rate of 86%. It provides a reliable data base for the study of this paper.

3.2 Measurement of Variables

All scales in this paper are based on internationally recognized mature scales. Considering the differences in cultural contexts at home and abroad, some items are derived from the revised domestic scale. In the scale, except for the control variables such as gender and age, the five-level Likert scale was used to measure the level of each variable.

1) Entrepreneurial Failure Learning (EFS). Based on the Cope classification method, this paper divides failure learning into four aspects: internal learning, external learning, self-learning and business learning. On this basis, the scale of Tucker, Edmondson, Chen Wenting and Li Xinchun was used for reference to measure the failure learning level of entrepreneurial subjects, and part of the text was revised according to the grammar rules of Chinese, and the measurement index including 8 items was finally formed, such as: "Failure has given me a more accurate understanding of my own abilities," "I have learned from failure how to deal with relationships." After measurement, the Cronbach's α coefficient of the scale was 0.837, indicating that the scale had a good reliability level.

2) Counterfactual thinking (CTF). This scale is based on the CTF scale compiled by Rye et al and the counterfactual thinking scale translated and translated by Shi Qingyuan, which mainly includes four aspects: non-referential upward, self-referential upward, other-referential upward and non-referential downward, which can be divided into upwardCTF and downwardCTF. A total of 16 items are included, such as "I think things could have been better" and "I feel glad when I think things could have been worse". The Cronbach's α coefficient of the scale was 0.751, indicating good reliability of the scale.

3) Entrepreneurial Performance (EP). The measurement of entrepreneurial performance draws on the views of Biggadike and other scholars, and measures the success of an enterprise compared with its main competitors in five aspects: employees, sales, market share, profit, and new products or services. Some studies show that the evaluation results of subjective performance evaluation method and objective performance evaluation method are consistent. The Cronbach's α coefficient of the scale was 0.782, indicating good reliability of the scale.

4) Control variables. Referring to the research of Janssen and Zhang et al., four variables including gender, age, educational background and enterprise size were selected as control variables.

3.3 Confirmatory Factor Analysis

SPSS20.0 and AMOS20.0 were used to test the reliability and validity of the scale. Through the test, the Cronbach's α value of each variable was greater than 0.7, indicating a high level of consistency and good reliability of the scale. In order to further verify the structural validity of each variable, the software AMOS20.0 was used for confirmatory factor analysis.

χ2 / df were all between the critical value of 1 and 3, RMSEM were all less than the critical value of 0.08, CFI, GFI, NFI and TLI were all greater than 0.9, indicating a high fit between the data and the model and a good structural validity.

3.4 Homologous Variance Test

Although the common method bias has been controlled to a certain extent, failure learning, counterfactual thinking and entrepreneurial performance all have the same source, as this paper mainly adopts the self-report method of the respondents. In order to avoid homologous bias (CMW) caused by some objective factors in the questionnaire filling process, this study adopted Harman single factor test to conduct homologous variance test on the final identified valid questionnaires, mainly by factor analysis of each variable when it was not rotated. The analysis results show that the explained percentage of variance of the first common factor is 38.732% without rotation, which is less than the critical value of 40%, indicating that the homologous variance is in the acceptable range, so it is concluded that there is no serious common method bias in this paper, and subsequent empirical analysis can be carried out.

4. Empirical Research and Interpretation of Results

4.1 Empirical Results and Hypothesis Testing

In this paper, the hierarchical regression method is used to test the proposed theoretical model. In order to avoid possible multicollinearity problems, the variables involving interaction (failure learning, upward counterfactual thinking and downward counterfactual thinking) are decentralized. At the same time, this paper also conducted standardization and collinear statistical test on the variables involved, and it was found that the VIF value was the smallest 1.004 and the largest 2.843, both of which were between the critical values of 1 and 10, indicating that there was no obvious multicollinearity problem in the predicted variables, and subsequent regression analysis could be carried out, and the results were reliable.

In the first step, control variables (gender, age, educational background and firm size) were put into the regression equation, and entrepreneurial performance was taken as the dependent variable to obtain Model 1. All the control variables except gender have significant influence on the dependent variable entrepreneurial performance. In the second step, the independent variable (failure learning) was introduced to obtain Model 2, which showed a significant positive correlation between failure learning and entrepreneurial performance ($\beta = 0.858$, $P < 0.001$), and the explanatory power of model 2 increased by 48% on the basis of model 1. Therefore, H1 has been verified, that is, failure learning positively affects entrepreneurial performance.

5. Conclusions and Enlightenment

5.1 Research Conclusions

The research results show that the counterfactual thinking adopted by entrepreneurs in different directions means that they pay attention to different aspects of the failure event, which determines their different cognition, attitude, thinking mode and information acquisition and transformation mode of entrepreneurial failure, and forms different failure

learning styles, which further affects their entrepreneurial behavior and strategic decision-making choices. Finally, it leads to the difference of entrepreneurial performance of new enterprises. Specific conclusions are as follows:

First, entrepreneurs good at failure learning can improve the entrepreneurial performance of new ventures. On the one hand, since the essence of failure learning is to allow entrepreneurs to reflect on the causes of failure, summarize failure experience, and share failure knowledge, the process of failure learning can effectively improve the vigilance and sensitivity of entrepreneurs, detect and identify crises in time, so as to accurately and effectively propose countermeasures, reduce the incidence of entrepreneurial risks and trial and error costs, and finally achieve entrepreneurial success. On the other hand, failure learning encourages entrepreneurs to question the organization's system, norms, culture and other relevant systems, update and optimize organizational practices and organizational mechanisms, which is conducive to improving the success rate of organizational innovation, transforming adversity into new competitive advantages, and improving entrepreneurial performance.

Second, the stronger the degree of upward counterfactual thinking, the stronger the positive relationship between failure learning and entrepreneurial performance. After a failure, if the entrepreneur can use upward counterfactual thinking, it is possible to promote the improvement of entrepreneurial performance. Through the research, it is found that the adoption of upward counterfactual thinking by entrepreneurs can promote failure learning behavior, and the "pain" and other negative emotions generated by upward counterfactual thinking can stimulate entrepreneurs to carry out profound reflection, so that the failure experience can obtain unique value and the learning effect can be significantly improved. At the same time, upward counterfactual thinking focuses on the future, motivating entrepreneurs with possible future gains and building better action plans to improve entrepreneurial performance.

Third, upward counterfactual thinking and downward counterfactual thinking synergistically positively regulate the relationship between failure learning and entrepreneurial performance. In the process of failure learning, not all counterfactual thinking can promote the improvement of enterprise performance. Only downward comparison will make entrepreneurs generate fixed causal logical thinking, which is not conducive to the reception and in-depth processing of failure information. In this case, intervention should be combined with upward counterfactual thinking. Entrepreneurial failure has "dual characteristics", moderate failure is conducive to stimulate the initiative of entrepreneurs to carry out upward counterfactual thinking simulation, so that they can flexibly adjust the current plan in the process of failure learning, so as to improve the feasibility of decision layout and reduce the possibility of entrepreneurial failure. It should be noted that due to excessive concern about failure may cause all kinds of negative emotions, such as frustration, confusion, etc., which makes it difficult for entrepreneurs to obtain correct self-recognition and self-worth perception. At this time, entrepreneurs need to adopt downward counterfactual thinking to relieve their emotions, adjust psychological expectations, adjust themselves to a comfortable state, and then combine upward counterfactual thinking to carry out effective learning and reflection, adjust action strategies, and reduce the possibility of decision-making errors.

It can be seen that moderate control and reasonable use of different types of counterfactual thinking can alleviate the cognitive dissonance of entrepreneurs after failure, and through the adjustment of their own behavior and task expectations, they can form the best learning state under the failure situation, which is conducive to entrepreneurs to make the best decision, and promote the positive effects of counterfactual thinking, so as to improve entrepreneurial performance.

5.2 Enlightenments on the Research

The high failure rate of entrepreneurship makes many entrepreneurs discouraged. If entrepreneurs can learn to rationally view gains and losses through failure, treat failure as a means of knowledge accumulation and skill acquisition, re-establish correct cognition through counterfactual thinking, and timely adjust the negative emotions after failure, then entrepreneurial failure can not only help entrepreneurs develop ideas, but also help entrepreneurs develop new ideas. Identifying existing problems and potential market opportunities can also create favorable conditions for subsequent entrepreneurship and turn failure experiences into competitive advantages to improve corporate performance.

First, establish a learning-oriented view of failure in the process of entrepreneurship, that is, "want to learn". People often do not pay enough attention to failure learning, compared with failure, people are more likely to recognize the value of success, ignore the significance of failure. Based on the experiential learning theory, entrepreneurs need to learn not only from their own failures, but also from the failures of others. First of all, entrepreneurial subjects should dare to face the experience of entrepreneurial failure, as soon as possible from the failure of the negative emotions out, failure learning as an important part of entrepreneurial activities; Second, the feedback signals of failure enable entrepreneurs to recognize the gap between themselves and those who succeed, to learn from each other, to view failure as a by-product of success, and to view failure learning as an investment in the future rather than a cost; Finally, the enterprise needs to form a team entrepreneurial atmosphere that tolerates failure and encourages learning. Entrepreneurial members share entrepreneurial risks, cooperate with each other, critically reflect on difficulties encountered, and form a competitive advantage with corporate culture as the core.

Second, to develop learning skills based on "anti-failure" thinking in failure situations, that is, to "learn." Human beings are born with the psychology of fear of failure, and try to avoid failure in daily activities. This fear of failure not only can not help the smooth development of entrepreneurial activities, but will reduce the probability of entrepreneurs trying to start a second business and reduce their subsequent entrepreneurial willingness. Entrepreneurship itself is a process of trial and error, each attempt is not in vain, and the experience of failure is not nothing. On the contrary, the experience of failure can provide rich value to help avoid "stepping on the mine" again, while providing new sources of creativity, therefore, it is necessary to look at the experience of failure from a dialectical perspective, so as to help entrepreneurs better use history to guide reality, and use reality to look forward to the future. At the same time, entrepreneurial mentors should often carry out training on counterfactual thinking, guide entrepreneurs to think about the possible negative impact of entrepreneurial

failure, think about how to deal with these impacts, constantly reflect and learn, adjust and optimize the original entrepreneurial strategy, and help entrepreneurs improve their "anti-failure" thinking ability. Improve and enhance their ability to cope with failure and learn from it effectively, and promote the growth and performance of new enterprises.

Third, the use of counterfactual thinking to adjust the emotions after failure, so that it is conducive to learning balance, that is, "fine learning". Counterfactual thinking in different directions has different functions, and adopting upward counterfactual thinking can help entrepreneurs better repeat the process of failure and improve subsequent behavior. However, the excessive use of upward counterfactual thinking will run counter to the initial expectation and bring many adverse reactions, such as pain, disappointment and other negative emotions, which will lead to entrepreneurs in the shadow of failure, causing huge psychological trauma and becoming cautious, which will affect their processing and processing of information and reduce the effectiveness of failure learning. Therefore, in the process of failure learning, entrepreneurs should find the balance point between upward counterfactual thinking and downward counterfactual thinking, strive to obtain maximum benefits while minimizing losses, adjust their emotions at any time, adapt to different learning states, in order to obtain the best results, and finally strengthen the positive promoting effect of failure learning on entrepreneurial performance.

5.3 Research Deficiencies and Prospects

First, the internal mechanism between failure learning and entrepreneurial performance is very complex, but this paper only considers the moderating effect at the thinking level of entrepreneurs, and further exploration of mediating variables and their effects is needed. Second, failure learning is a dynamic process, and the connotation, mode and action mechanism of learning on enterprise performance will change with different stages of enterprises. Follow-up studies can dynamically track the effect of failure learning on different stages of start-ups and the action mechanism on entrepreneurial performance. Third, the samples selected in this paper are mainly concentrated in the Yangtze River Delta region, so it is necessary to expand the scope of investigation to improve the applicability and representativeness of the research conclusions.

References

Chen, Z.-W., & Hao, X.-L. (2008). An empirical study on the relationship between entrepreneurial spirit and firm performance in entrepreneurial teams. *Management Science*, (1), 39-48.

Cope, J. (2011). Entrepreneurial Learning from Failure: An Interpretative Phenomenological Analysis. *Journal of Business Venturing*, (6), 604-623. https://doi.org/10.1016/j.jbusvent.2010.06.002

Hao, X.-L., Zhang, Y.-L., Liu, Y.-R., *et al.*. (2018). Congratulation or regret: A study on the relationship between counterfactual thinking and entrepreneurial learning after failure. *Nankai Management Review*, (2), 75-87.

Huang, H.-Y., Su, D.-J., & Li, W.-D. (2016). The influence of failure learning on individual innovation behavior: the moderating effect of psychological resilience and sense of innovation support. *Science and Management of Science and Technology*, (5), 161-169.

Leitch, C., Hill, F., & Neergaard, H. (2010). Entrepreneurial and Business Growth and the Quest for a "Comprehensive Theory": Tilting at Windmills?. *Entrepreneurship Theory & Practice*, (2), 249-260. https://doi.org/10.1111/j.1540-6520.2010.00374.x

Song, Z.-G., Niu, F., Zhang, Y.-L., *et al.*. (2013). Entrepreneurial context, key learning events and stakeholder influence analysis. *Journal of Management*, (4), 558-565.

Ucbasaran, D., Shepherd, D. A., *et al.*. (2013). Life after Business Failure: the Process and Consequences of Business Failure for Entrepreneurs. *Journal of Management*, (1), 163-202. https://doi.org/10.1177/0149206312457823

Yamakawa, Y., Peng, *et al.*. (2015). Rising from the Ashes: Cognitive Determinants of Venture Growth after Entrepreneurial Failure. *Entrepreneurship Theory & Practice*, (2), 209-236. https://doi.org/10.1111/etap.12047

Zhang, Y., Duysters, G., & Gloodt, M. (2014). The Role of Entrepreneurship Education as a Predictor of University Students' Entrepreneurial Intention. *International Entrepreneurship & Management Journal*, (3), 623-641. https://doi.org/10.1007/s11365-012-0246-z