How Team Allocate the Resource; A Model of Escalation of Commitment in Competitive Situation

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Abstract—Allocating surplus resource in the near-failure projects is ubiquities decision error in the organizations. This decision error, especially in the competitive situation, can be extremely acute. The main implications of the current research are to find to what extent the individual trait anxiety predict escalation of commitment in the teams. It can shed light to the prediction of teams’ resource allocating by some attribute of team members in the competitive situation. By acknowledging that different resource allocating is elicited by different competitive situation and personality diversity within the team, we suggest that these differences in the allocation of extra resource in the near to failure projects is a consequence of competition shadow and individual anxiety. We conclude by discussing how managers might better evaluate whether continue or stop a near to failure project.

Keywords—Escalation of commitment; sunk cost effect; Competition shadow; innovation; competitive anxiety; behavioral theory of the firm

I. INTRODUCTION

Competition is a ubiquitous feature of daily life between organisms, animals, individuals, groups, and so on for a niche, territory, for resources and goods, for prestige, recognition, mates, awards, or group or social status, for leadership. This dense competition does not only give profit to the economy by developing new products, innovation, and technology but also proffering better performance to individuals, teams, organizations and even countries. It is also an iterative phenomenon that sports settings have long been recognized as conducive to organizational research, given that many of the core elements of organizations, such as hierarchy, teamwork, and the importance of strategic decision-making are present [1, 2].

On the other hand, the ambiguity in the changing daily life is a ubiquitous phenomenon make worry about the future. Whether the uncertainty is positive (a challenge) or negative (a threat) depends on how the individual perceives that particular situation. Not only athletes but also all of decision makers often feel a substantial imbalance between environmental demand and their response capability, under conditions where failure to meet demand has important consequences. We call this psychological ‘imbalance between capability and demand’ as ‘competition shadow.’

Popular approaches to new product development [3-5] such as project management [6-8], speed and cycle time management [9], as well as total quality management and continuous improvement [10-12], consider teamwork as a crucial success factor [13]. Even when managers make decisions in a team, they are influenced by their own psychological state leads by their perception of environmental pressure (CS). The prevalence of teams in an advisory or decision-making roles in organizations means that caution is needed when transferring results from the literature on individual decision making to organizational contexts and suggests a need for investigating how teams make decisions. Notwithstanding teams comprising members that dealing with threat individually. Martens (1995) [14] believe that the perception of threat in competitive situations varies from person to person as a function of previous experiences and individual qualities; that is, individuals differ in the competitive trait. Research has shown that subjects with higher levels of competitive trait perceive a greater degree of threat in competitive situations than do persons with lower levels of the competitive trait. This effect attenuates in teams due to scattering the responsibility.

Furthermore, the strong emphasis on managerial decision-making tasks gives the experiments a very realistic flavor, and the demonstration of escalation of commitment and sunk cost effects in real organizational decisions further demonstrates its applicability to managerial work. A series of experiments show that in the situation framed as a loss for example with receive negative feedback (as stimuli) of their performance, escalation of commitment will increase [15-17]. This little manipulation is enough to stress the subjects and tends to result in decisions to commit more resources to the activity that caused the loss, in effect escalating their commitment to a decision that appears to be faulty. These findings are closely related to the risk-taking literature because the alternatives usually are to increase investment in an activity that has caused losses but has a chance of giving future revenues (a risky prospect) or not to invest, which gives no more gain or loss (a prospect with no risk) [15-17].

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Interestingly, team decision making can decrease the sunk cost by disseminating the responsibility in teams and at the same time may lead to a higher escalation of commitment by increasing the pressure. This equivocal phenomenon propels us to study simultaneity effects of competition shadow and individual differences on the escalation of commitment in the team.

According to this brief review, although previous research had discovered a different aspect of escalation of commitment, it’s not discovered that which personality trait in team do contribute more to the escalation of commitment. Using a Competitive anxiety in sport[14], this article also seeks to bridge this gap by explaining the cause of special personality trait on escalation of commitment.

II. LITERATURES

A good theory of competition shadow should predict the levels of competitive state among people who differ in a competitive trait in varying competitive situations. To do so, the theory must develop axioms and theorems about the relationships among elements of the competitive situation, the persons in competitive situations, and their responses in the form of varying levels of competitive state. However, a theory needs to do more; it must specify the causes of competitive state reaction.

A. Competition Shadow Constructs

McGrath (1970a) has specified the antecedents of threat and thus A-state in a general form in his conceptual development of the stress process. Stress, he states, “has to do with a (perceived) substantial imbalance between demand and response capability, under conditions where failure to meet demand has important (perceived) consequences [18](p.20); that is, there is uncertainty that the demand can be met, and failure to do so is important. From this general formulation, a theory of specific causes of competition shadow was developed.

1) Uncertainty of the Outcome

Uncertainty about winning or losing in competition can be determined by the person's perceived probability of success (Ps) or probability of failure (Pf). The former is a fundamental construct in several other theories, including Atkinson's (1957) risk-taking theory, Crandall's (1974) achievement motivation theory, and Rotter's (1954) social learning theory[19-21]. In each of these theories and the theory of Competition shadow, Ps is conceptualized as an expectancy-a cognitive anticipation aroused by cues in the subjective competitive situation that performance of some act will produce a particular consequence. In other words, when a manager is thinking about competing, he or she determines the probability of obtaining a positive outcome by evaluating the quality of the demand with the predictable performance (response capability).

2) Importance of the Outcome

The extent to which a person measures attaining a desirable outcome defines importance. Crandall (1974) has labeled this construct “attainment value” and stated that the concept focuses simultaneously on the individual and the task and situation at hand[20]. Thus, it is a situation-specific measure of individual differences in perceived value of obtaining a particular outcome. These values may be extrinsic or intrinsic. For example, the expectancy of receiving $100,000 for introducing a successful product, or the accolades of colleagues or a public organization for achieving a standard, or the winning of an innovation prize are all extrinsic rewards that usually are valued by competitors. As it we can conclude that:

Hypothesis 1: Competition shadow comprises importance and uncertainty of outcomes and the multiplication of both construct.

B. Escalation of Commitment

Escalation of commitment is manifested as the tendency to continue to invest in the losing course of action [22-26], particularly when one is personally responsible for the initiation of the failing investment [23, 26-28]. This concept is about the people manner deal with difficulties in which things not only have gone wrong but in that corrective actions can deepen or compound the difficulty. For example, organizations must tackle the escalation dilemmas. Firms can spend enormous resources developing new products, only to find that the consumer’s response is lackadaisical. When this occurs, should the firm spend extra sums to promote the lagging product as it currently exists, send it back to the lab for re-engineering, or scrap it altogether? [24].

There are three key features in a typical escalation situation [22-24, 29, 30]. First, a decision maker invests significant resources (e.g., in an employee or project). Second, this decision maker gets feedback that the chosen course of action has been unsuccessful (e.g., the employee performs poorly, or the project fails). Finally, the decision maker decides to continue to invest in the original course of action or to withdraw resources from his or her prior, losing, and decision[31]. Hence, the extent to which people are able either to extract themselves from losing positions or are prone to fall victim to escalation biases is important for organizations[32]. In studies by Whyte (1993) and Seibert and Goltz (2001), escalation tendencies were even exacerbated in groups [33, 34], which might be due to choice shift effects in that interacting groups making more inordinate decisions than the average of the group members’ initial preferences [34], social identity processes [35], and the typical group think symptoms that occur in cohesive groups [36, 37]. Therefore:
Hypothesis 2: The more competition shadow, higher escalation of commitment.

The classic literature on the escalation of commitment has centralized social pressures and future expectations when explaining the error antecedents (as well as when it is likely to be most pervasive) [30]. Moon et al. (2003) argued that researchers have demonstrated that this decision error is caused by factors such as self-justification pressures [15, 23, 38] and the need to save face [39]. Then pressures to justify one’s decision is reinvigorated by extreme positive outlook regarding the future probability of success, resulting in a perceived need to “stay the course”. A purely risk-theoretic interpretation of escalation processes is not possible, however, as findings show that other mechanisms also contribute to the escalation of commitment [29]. Consistent with a cognitive dissonance explanation, the individual feeling of responsibility for the decision and need to justify past behavior result in a stronger escalation tendency [15, 29, 33]. Moreover, the degree to which anxious individuals tend to be hyper vigilant and easily capitulate to threat feelings might make them especially sensitive to Threat-rigidity effects [40]. But the researches has ubiquitous results. Optimistic participants’ desire to recover a sunk cost will increase [41]. Hence, when the sunk cost increases, they will be more willing to continue, that is to escalate commitment. In contrast, loss aversion [42] dictates that pessimistic participants would be less willing to continue the more they can lose. As a consequence, when sunk cost increases, the less likely they are to continue to invest, that is they will de-escalate commitment [43]. Thus,

Hypothesis 3: The less competitive anxiety, the more likely that the manager will commit to his near-failure decision.

C. Team Decision Making and Team Performance

An important feature of organizations is that decisions are often discussed and made by teams rather than individuals. In reflection to a variety of forces such as technological turbulence and the uncertainty of environments, many organizations have conducted a team approach to work [12, 44, 45]. Intragroup processes refer to the interactions that take place among team members and includes communication patterns, personal disclosure and conflict, and efforts toward leadership and other forms of influence. Team output refers to team outcomes associated with productivity, as well as to the capability of team members to continue working cooperatively (team viability) [46].

Researchers have historically adopted three different methods for operationalizing team composition. The most common operationalization is to calculate a mean score for the individual measures [47, 48]. The mean score of individual measures is, however, potentially problematic in some instances because aggregation can mask important information when individual characteristics do not combine additively to form a collective resource pool. The second method used to operationalize team composition focuses on the variability of individual characteristics. Such measures are frequently used to capture differences in team composition that are masked by the mean. The third approach focuses on the highest or lowest individual-trait score for the team. This is based on research that suggests that a single individual can significantly affect a group [46, 49]. Focusing on the highest or lowest individual-trait score of team members is therefore appropriate in situations where one person has an inordinate effect on team success [46].

We measure team personality by averaging the scores of each team member for each individual personality factor. We use the mean as an aggregation measure of the group data following Barry and Stewart [50], Barrick et al. [46], van Vianen and De Dreu [51], English et al. [52] and Acuña et al. [53].

We expect that in teams in which perceived trait anxiety is high, trait anxiety shape as a share perception within the team and thus mirror a team-level construct. In contrast, in teams in which trait anxiety is low, no share anxiety develops within the team which make an individual level of analysis more appropriate.

Hypothesis 4: The highest anxiety of an individual in a team is a better contributor to the team escalation of commitment.

III. METHODOLOGY

We applied a quasi-experimental approach to test our ideas. Using announcement, one hundred and fifty university students from China will arrayed into some three-person teams with opportunity to win one month full scholarship (3000 RMB in China) for their participation. We keep team size constant because size has been found to affect team performance in certain settings. All participants completed trait anxiety (Martens et al., 1995) questionnaires on website in their own language. Participants will randomly assign to teams.

A 3*3 factorial experimental design, with ‘importance of outcomes’ and ‘uncertainty of outcome’ as the dimension of CS has been applied and teams assigns to conditions. There were three levels of the importance of outcomes factor: (1) ‘sandwich’, in which if the team gains the highest performance will receive a sandwich; (2) ‘full scholarship’, in which if the team gain the highest performance will receive a month full scholarship; (3) ‘Survival’, in which the team should pay (200 CNY in China) to attend the competition, if team gains the highest performance will receive a month scholarship otherwise loss (200 CNY in China); There were three levels of the uncertainty of outcomes factor, which told the teams “you will compete against competitors based your performance in the 4th practice”; (1) ‘Weaker’, in which we told to the teams ‘you will compete against teams which has less capability than you based the average performance in the 4th previous practice; (2) ‘peer’, in which we told to the teams
‘you will compete against teams with approximately similar capability; (3) ‘Weaker’, in which we told to the teams ‘you will compete against teams with has less capability than you based the performance in the 4th practice.

We gave 100 RMB to each team as asset for participating the experiment. Before starting the main competition each team should paid 40 RMB for participating the main competition. After that we used pooling for determining their condition according our 9 conditions of ‘uncertainty of outcome’ and ‘importance of outcome’. Prior to the actual competition, participants also completed ‘uncertainty of outcome’ and ‘importance of outcome’ questionnaire. Afterward, teams entered the competition and played a computer game. Then we announce team’s score and give them a negative feedback that their score is less than other rivals (even if they earn the best score) and ask them if they want to continue or want to withdraw. At this stage we offered three different choices to them: (1) pay 30 RMB and continue for ‘2 extra minutes’; (2) Pay 60 RMB and continue for ‘4 extra minutes’ or; (3) take 60 RMB and ‘withdraw’.

A. Method for Analyzing the Model

Partial Least Squares (PLS) has been chosen for the analysis of the data in this study. Competition shadow and trait anxiety have been considered as latent constructs in our structural model. PLS estimates path models consisting of latent constructs which are indirectly calculated by multiple indicators.

B. Measurement Model

The measurement model is evaluated by checking four criterions; reliability of every single item, the reliability of every construct, discriminant validity and convergent validity[54]. We initiated our analysis by checking reliability and validity of first order or lower constructs by performing exploratory factor analysis (EFA), composite reliability (CR) and average variance extracted (AVE) as proposed by various researchers.

The factors loading for the first order items are showing satisfactory item reliability. As presented in Table I, all values are higher than 0.542. While composite reliability of the high order construct is at a satisfactory level also, as all indicators are above the 0.7 threshold (CR = >0.832). Average variance extracted should exceed >0.5 to show good convergent validity [41]. In this case all values are more than 0.50 threshold. Our results showed adequate discriminant validity for our second order latent variables, as all diagonal values are larger than off-diagonal values in the respective rows and columns in Table I. The values for CR and AVE are shown in Table II and Table III respectively. As indicated by these results, our entire constructs meet the criterion for reliability, convergent validity and discriminant validity. Overall, our measurement model is satisfactory so we can proceed with our analysis of the structural model.

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C. Structural Model

The hypotheses have been assessed by examining the parameters provided by the PLS structural model. Fig. 1 describes the path coefficient with an excellent average path coefficient = 0.403, Average R-squared = 0.396, Tenenhaus GoF (GoF) = 0.514 which indicating the high prediction of the model. Our structural model can be made an abstract by noting the following significant direct effects of LVs: CS predicted EOC (β = 0.43, p < 0.01) supporting H2. Based these data in Fig. 1, Trait predicted EOC (β = -0.38, p < 0.01) supporting H3. Based the data in table I, H1 has been supported by the very high factor loading of Imp*Unc.

To test the H4, we test our model using Minimum, Maximum and Average of team member’s trait anxiety. The result analyzed by Kock [55] method. Based the standard error and Betta values, H4 has been rejected. As presented in Table IV although the differences between the minimum level of trait anxiety is significant but the differences between average and maximum level of anxiety has been rejected at 95% of confidence interval.

IV. CONTRIBUTIONS

Our approach of integrating the escalation of commitment theory with competitive state anxiety and above average theory to explain a comprehensive model of predicting resource allocating has the potential to make at least four contributions to the literature.

First, by explaining variance among individuals’ trait anxiety to notice an escalation of commitment, we supplement escalation of commitment research that has investigated how organizational members collect, analyze, and communicate information on competitors. Although it is known that the characteristics of individuals such as gender and expertise influence
their escalation of commitment and allocation of resource, the literature has largely neglected these individual differences in team.

Second, we supplement escalation of commitment research with introducing new antecedents like competition shadow comprising simple dimension ‘uncertainty of outcomes’ and ‘importance of outcomes’. Accordingly, we can develop a scale of antecedents to predict the resource allocation.

Third, our study offers an explanation of why some managers estimate their rivals higher than others and recognize that how this estimation can lead to the resource allocation. Our model suggests at least three reasons: (1) managers may differ in perceived competition shadow due to different organizational environments; (2) the saliency of experience the of competition shadow; and (3) manager differ in trait anxiety, which influences their attention to the specific ability of rival.

As a fourth contribution to the escalation of commitment literature, we offer a model including interactions between managers and environment. That is, as compared to existing studies, our model is unique in relationships and justification.

Finally, we contribute to the literature on Uncertainty of the outcome and Importance of the outcome are the two constructs proposed to explain how different subjective competitive situations affect a person's perception of threat and thus the competitive state. Stated another way, it is proposed that changes in the subjective competitive situation affect the perception of uncertainty and importance of the outcome, which causes changes in perception of threat and thus the competitive state. All of the relationships can include to the Fig. 1 as proposed.

A. Future Empirical Research

The focus of the present research is on how teams interpret the competition shadow and the implications this has for how they respond to this threat. In another word in the situation of competition what will happen for resource allocating (escalation of commitment).

The propositions of our model are testable. Competition shadow can be manipulated in experimental settings, and scholars can investigate team decision making in field or laboratory experiments. For example, one could confront a team of managers with hypothetical competitive situations to investigate how their personality influence the assessment of these situations, that is, whether the managers perceive the situation and the way they estimate the rival.

Similarly, top managers could be asked to assess hypothetical recommendations about resource allocation brought to them by the resource in the competitive situation, where the more investment in the close to failure task at hand is the scale of escalation of commitment. Framing is manipulated. We believe that these experimental studies will be useful for enhancing our understanding of the judgment about competitors and resource allocation of the managers in different functions of the organization and that the results will have implications for how and why the resource is allocated to innovation projects.

Alternatively, our propositions may be tested in an organizational setting.

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