CEO anger: a catalyst for error recognition and learning

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Abstract

Purpose – This paper elucidates the role of anger in error management (EM) and organizational learning behaviors. The study explores how anger can catalyze learning, emphasizing its strategic implications.

Design/methodology/approach – A double-layered moderated-mediated model was developed and tested using data from 744 Chinese CEOs. The psychometric properties of the survey instrument were rigorously examined through structural equation modeling, and hypotheses were tested using Hayes's PROCESS macros.

Findings – The findings reveal that anger is a precursor for recognizing the value of significant errors, leading to a positive association with learning behavior among top management team members. Additionally, the study uncovers a triple interaction effect of anger, EM culture and supply chain disruptions on the value of learning from errors. Extensive experience and positive grieving strengthen the relationship between recognizing value from errors and learning behavior.

Originality/value – This study uniquely integrates affect-cognitive theory and organizational learning theory, examining anger in EM and learning. The authors provide empirical evidence that anger can drive error value recognition and learning. The authors incorporate a more fine-grained approach to leadership when including executive anger as a trigger to learning behavior. Factors like experience and positive grieving are explored, deepening the understanding of emotions in learning. The authors consider both negative and positive emotions to contribute to the complexity of organizational learning.

Keywords Anger, Error management, Affect, Learning, CEOs, Behavioral strategy, Cognition, Decision making

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1. Introduction

Error management (EM) is a pivotal strategy that involves identifying, understanding, and addressing errors within organizations, enhancing crisis management and continuous improvement (Ramanujam and Goodman, 2003; van Dyck *et al.*, 2005; Dahlin *et al.*, 2018; Geng *et al.*, 2022; Oliveira *et al.*, 2022; Lauzier and Clarke, 2023).

Existing research mainly focuses on individual-level analysis of errors (Steele-Johnson and Kalinoski, 2014), overlooking the impact of significant, infrequent errors on organizational learning. Addressing this gap requires a nuanced approach considering emotions and their ramifications on learning behavior (Cerni *et al.*, 2012; Zhao, 2011). In this regard, a less explored dimension of EM is the influence of emotions, particularly anger, on EM and learning behavior. While anger has traditionally been viewed negatively (Lerner *et al.*, 2015), recent studies have indicated that anger may have a constructive role in recognizing error value (Simonsson and Heide, 2018). Our study focuses on CEO anger as a catalyst for organizational learning, exploring leadership's role in this process. This study tries to answer the following research question: *How does executive anger shape the perception of error value and subsequent learning behavior?*

Integrating the Affect-Cognitive Theory of management decisions (Cristofaro, 2019, 2020) and the Organizational Learning Theory (Argyris and Schon, 1978; Senge, 1990; Argote and Miron-Spektor, 2011; Grieve, 2021), we developed and tested a double-layered moderated-mediated model using data from 744 CEOs to examine the relationships between emotions, EM, and learning behavior. The survey instrument's psychometric properties were thoroughly checked using structural equation modeling, and the hypotheses were tested using Hayes's PROCESS macros (Hayes, 2018). The findings reveal anger as a precursor for recognizing value from major errors, with this recognition exhibiting a positive association with learning behavior. The influence of anger on recognizing error value is contingent upon an EM culture and supply chain disruptions, with high experience and positive grieving strengthening the relationship between recognizing error value and learning behavior. These findings underline the complex dynamics of organizational learning, addressing the need to examine emotions in error learning (Lauzier and Clarke, 2023).

Our research offers an enriched understanding of the crucial role of emotions, especially anger, in EM and learning behavior. In the ever-evolving domain of today's business environment, the capacity to effectively manage and learn from errors is tantamount to organizational resilience. Drawing upon the foundations of the Affective-Cognitive Theory of management decisions and the Organizational Learning Theory, we elucidate how anger, often misconstrued solely as a detrimental emotion in organizational settings (Lerner *et al.*, 2015), can catalyze profound organizational learning. This paradigm shift deepens our exploration into strategic leadership, particularly when addressing the intricate interplay between emotions and cognition that underpin strategic behaviors (Powell *et al.*, 2011). This analysis resonates with the tenets posited by some scholars emphasizing the nuanced intersections between emotional reactions and strategic decision-making processes (Abatecola and Cristofaro, 2020; Cristofaro *et al.*, 2022; Gaba *et al.*, 2023).

Furthermore, our findings accentuate the importance of recognizing and integrating contextual factors in the EM process. Specifically, an organization's robust EM culture and external dynamics, such as supply chain disruptions, can significantly influence the process and outcomes of learning from errors. In essence, these contextual elements, in conjunction with executive emotions like anger, orchestrate a multifaceted framework through which organizations can navigate, understand, and derive value from their mistakes.

From a practical standpoint, the findings provide valuable insights for organizations and managers. Effectively implementing EM strategies can elevate crisis management proficiency and foster a culture of perpetual enhancement. The correlation between anger and recognizing error value presents a paradigm shift, revealing the potential of anger as a

driving force for learning and advancement. This perspective translates to CEOs channeling their anger into recognizing learning prospects within errors.

The pivotal role of EM culture in shaping the interplay between anger and error value recognition underscores the significance of fostering a supportive learning culture (Cusin and Goujon-Belghit, 2019; Cristofaro *et al.*, 2023). The moderating influences of supply chain disruptions, experience, and positive grieving accentuate the necessity for considering these factors in devising EM strategies and nurturing a learning culture. These insights serve as guideposts for practice, enabling adept navigation through errors and fostering an environment for continuous learning and excellence.

Section 2 will provide the theoretical framework, incorporating the Affect-Cognitive Theory of management decisions and the Organizational Learning Theory, and develop hypotheses based on this foundation. Section 3 will detail the methods employed in our empirical research. Section 4 will present the results derived from the applied structural equation modeling. Moving on to Section 5, we will engage in a comprehensive discussion of these results. Section 6 will explore the implications for both theory and practice arising from this study. Additionally, we will address the study's limitations and outline potential directions for future research.

2. Theoretical underpinnings and hypotheses development
The Affect-Cognitive Theory of management decisions (Cristofaro, 2019, 2020) and the Organizational Learning Theory (Argyris and Schon, 1978; Senge, 1990; Argote and Miron-Spektor, 2011; Grieve, 2021) provide the theoretical foundations for this study. The Affect-Cognitive Theory of management decisions suggests that individuals react differently based on their sensemaking of the situation, which is goal-oriented, and that affective states have a *primus inter pares* role in determining executive behavior. In brief, emotional reactions to changes in the situation influence cognitive appraisals of events (Smith and Kirby, 2009), which directs strategic behavior (Hodgkinson *et al.*, 2023). Anger is considered a more aggressive negative emotion that can serve as a motivator for action. In this study, the assessment of anger triggers and interpretation of errors by CEOs play a crucial role in learning behavior.

Organizational Learning Theory focuses on how organizations acquire, retain, and apply knowledge to improve performance and adapt to changing environments. It posits that organizations can learn collectively through knowledge acquisition, information interpretation, and organizational memory (Argote and Miron-Spektor, 2011). In the study context, Organizational Learning Theory provides a theoretical foundation for understanding how organizations learn from errors and improve performance. Organizational Learning Theory has predominantly focused on successes while ignoring errors (Flores *et al.*, 2012). Cyert and March (1963) highlight that organizations respond differently to successes and errors: successes often lead to less emphasis on learning processes, with a tendency to rely on internal knowledge and processes. In contrast, major errors prompt a more decisive impetus to understand their causes. Organizational Learning Theory also includes frameworks such as the Behavioral Theory of the Firm, where motivation is crystalized more from significant errors than successes (Gaba *et al.*, 2023). Errors can block an organization's progression toward desired outcomes. These roadblocks can create a sense of loss of control; thus, executives will ensure action to decrease the perceived loss of control. Learning is an essential aspect of understanding these errors and regaining control. Scholarly perspectives differ on whether successes enhance or hinder organizational learning. Nonetheless, learning can be achieved through various means, including learning from others and experimentation (Argote and Miron-Spektor, 2011; Argote *et al.*, 2021).

In the context of supply chain disruption, this study explores the interplay between Affect-Cognitive Theory and Organizational Learning Theory to understand the role of CEO anger

in recognizing substantial errors and improving the organization's knowledge base. Both theories provide valuable insights that complement each other and contribute to a comprehensive understanding of the dynamics at play.

The Affect-Cognitive Theory (Cristofaro, 2019, 2020) emphasizes the influence of affective states on decision-making processes and learning behavior. It follows that CEO anger, triggered by errors caused by rare events, should lead to a greater recognition of the value and learning potential inherent in those errors. This recognition of value aligns with the principles of Organizational Learning Theory, which suggests that errors can serve as valuable sources of information and insights that enhance organizational knowledge and decision-making. Both theories assert that anger will motivate executives to act when disruption occurs.

Furthermore, the Affect-Cognitive Theory posits that when CEOs experience anger, they are more motivated to initiate learning processes and engage in activities that foster organizational learning. This emphasis on affective states influencing learning behavior complements Organizational Learning Theory, which focuses on learning processes and integrating new knowledge and behaviors into organizational routines and practices (Argyris and Schon, 1978). CEOs who recognize the value in errors are more likely to engage in learning activities and behaviors, as emphasized by Organizational Learning Theory. This recognition of value acts as a mechanism through which CEO anger can positively affect learning behavior in response to errors caused by rare events, mediating the relationship between CEO anger and learning behavior.

Organizational Learning Theory also highlights the importance of an EM culture in facilitating learning processes. Error management culture encourages the recognition of errors as learning opportunities rather than sources of blame or punishment (Senge, 1990; Argote and Miron-Spektor, 2011). Such a culture promotes learning behavior and aligns with the Affect-Cognitive Theory's emphasis on recognizing the value of negative feedback. In circumstances where EM is low and supply chain disruptions are high, CEO anger can have an even more positive effect on recognizing the value of major errors. This suggests that CEO anger can catalyze recognition of the value of errors and drive the organization's learning processes, particularly in challenging situations (Cristofaro, 2020). Moreover, CEOs with high levels of experience and a positive grieving mindset can better leverage the value of errors and facilitate effective learning processes within the organization. This interaction between individual characteristics and emotions complements the Organizational Learning Theory's emphasis on individual and collective learning processes.

2.1 CEO anger and recognizing value from major errors in rare events
This study distinguishes between errors ascribed to CEOs' actions and those attributable to external factors. Errors within the control of CEOs are affected by their decisions and actions, while external factors contribute to errors outside their control. CEO anger may motivate recognizing the value of errors within their control, driving learning behavior. This study explores how CEOs respond, engage with stakeholders, and adapt strategies for errors outside their control.

CEO anger plays a significant role in understanding the reasons behind substantial errors within an organization and whether CEO anger enhances the organization's knowledge base. Despite being a negative emotion, anger can generate reflection and motivation (Lerner and Tiedens, 2006). While previous studies suggest that negative emotions lead to unfavorable outcomes (Blau, 2007), we argue that not all negative emotions have the same effect. Most studies on negative emotions have combined multidimensionality as a single influence on organizational outcomes, including organizational learning. The argument is that negative (or positive) emotional valence influences in uniform rather than in a differential manner. This

argument, however, has been challenged by the proposal that even negative emotions can have varying effects on outcomes (Lim and DeSteno, 2016). For example, sorrow and anger would have different motivational propensities. Sorrow may decrease motivation, but the reverse would likely hold for anger. We propose a more fine-grained approach to negative emotions by focusing on anger. This design aligns with the Affect-Cognitive Theory of management decisions (Cristofaro, 2019, 2020), which suggests that different emotions can impact organizational outcomes, including learning. In particular, the Affect-Cognitive Theory proposes that anger can stimulate learning by driving the exploration of the causes of major errors and initiating change. By experiencing anger, CEOs may be motivated to delve deeper into the factors that led to the errors, enabling them to gain valuable insights and knowledge from these experiences.

Organizational Learning Theory further supports the idea that learning involves searching for and assimilating new knowledge (Argote and Miron-Spektor, 2011). Our study focuses explicitly on searching to gain a more precise understanding of exploratory learning. Top executives, including CEOs, can explore externally and actively search for new knowledge to learn from significant, strategy-disrupting errors (Zahra and George, 2002; Tian *et al.*, 2021). This aligns with the Affect-Cognitive Theory's proposition that anger can persist after triggering events, making it a significant motivator for comprehensive and strategic learning from these errors. CEOs, driven by anger, are more likely to take control of the situation and acquire relevant knowledge to understand and learn from these events.

Organizational Learning Theory emphasizes the value of unique knowledge, as it can provide a competitive advantage to organizations. Even though rare events and major errors may seem irrelevant to ongoing strategies, the uniqueness of the data they offer can give different perspectives and innovative thinking for current and future strategies in complex environments. Therefore, based on Affect-Cognitive Theory and Organizational Learning Theory, we propose the following hypothesis:

H1. Anger positively correlates with CEOs recognizing value from major errors due to rare events.

2.2 Recognizing value from major errors in rare events and learning behavior

When a CEO's anger is triggered by an error resulting from a rare event, it aligns with the principles of the Affect-Cognitive Theory of management decisions. This theory suggests that anger can stimulate learning by driving the exploration of error causes and initiating change (Lerner and Tiedens, 2006; Cristofaro, 2020). The CEO can leverage the organization's capacity to search for valuable knowledge, integrating it effectively to implement acquired information. This process aligns with the focus of Organizational Learning Theory, which emphasizes the importance of learning behavior in generating knowledge (Argote and Miron-Spektor, 2011).

Wiese *et al.* (2022) described that learning behavior involves in-depth interactions among team members, including thorough discussions to understand and assimilate new knowledge. These discussions foster collaboration and reflection, facilitating problem-solving and effective decision-making. As Groggins and Ryan (2013) and Olson *et al.* (2007) discussed, trust, cognitive conflict, and cognitive diversity within learning behavior contribute to comprehensive decision-making processes.

However, it is noteworthy to acknowledge the potential contrasts in the findings presented by Wang *et al.* (2023). Based on 764 data samples from high-tech industries in mainland China, their investigation underscores that anger may negatively affect learning from failure. They further explore the moderating roles of resilience and project commitment in this process, revealing that resilience and project commitment can alleviate the adverse impact of anger on learning from failure. While these contrasts offer alternative perspectives, the

underpinning significance of anger as a stimulant for learning remains a consistent thread throughout these discussions.

While learning behavior alone does not guarantee positive organizational outcomes, Edmondson (1999) noted that it incentivizes acquiring and incorporating new knowledge through collaboration and reflection. By recognizing the value of significant errors resulting from rare events, organizations can enhance their learning behavior and increase the likelihood of learning from these errors. Therefore, we propose:

H2. Recognizing value from major errors due to rare events has a positive relationship with learning behavior.

2.3 CEO anger and learning behavior

According to our model, a CEO's anger directly impacts learning behavior. As previously discussed, the CEO holds the most influential role within the organization, and when triggering events occur, the CEO will be motivated to seek knowledge and explain major errors. CEOs thoroughly discuss options and ideas with other executives, emphasizing insights from each executive's experiences and functional positions. Collaboration with diverse decision-makers is crucial for top management teams seeking valuable knowledge (Olson *et al.*, 2007). Additionally, a CEO's anger can instigate changes and influence other team members in strategic decision-making (Lerner *et al.*, 2015; Cristofaro, 2019). CEO anger communicates the urgency and desirability of seeking change, which plays a paramount role in the collaboration of executives when addressing issues related to major errors. Therefore, we propose the following hypothesis:

H3. CEO anger is positively related to learning behavior.

2.4 CEO anger and the mediation of valuing major errors through rare events with learning behavior

Building on the preceding discussion, a CEO's anger stemming from a significant error caused by a rare event motivates the CEO to understand errors and take action to prevent or minimize similar mistakes (Hunter *et al.*, 2011). Valuing major errors through rare events is a natural mediator when a CEO's anger drives the organization to learn from these errors. This knowledge cannot be acquired in isolation; it requires scanning the internal and external environment, incorporating relevant information, and reflecting on the obtained knowledge (Higgs and Rowland, 2005). Thus, we propose the following hypothesis:

H4. Recognizing the value of errors due to rare events mediates the relationship between CEO anger and learning behavior.

2.5 Moderating effects of error management and supply chain disruption on CEO anger, valuing errors, and learning behavior

Error management provides individuals with an environment conducive to positively coping with errors, encouraging the recognition of errors as valuable learning experiences (Frese and Keith, 2015). While some studies question the contribution of EM, most support its positive impact on learning when errors occur. In a positive environment, individuals are more willing to choose challenging tasks and increase risk-taking (Steele-Johnson and Kalinoski, 2014). EM emphasizes the importance of creating a non-threatening environment when errors arise, particularly in the case of significant and costly errors. We argue that a CEO's anger is a substitute for EM when it is lacking in organizational culture, motivating individuals to learn from major errors caused by rare events (e.g. Cusin and Goujon-Belghit, 2019; Deng *et al.*, 2022). We further propose that supply chain disruption interacts with EM to intensify the

relationship between CEO anger and recognizing value from major errors. Supply chain disruptions, unintended and unexpected, necessitate investigations into understanding the underlying causes (Tukamuhabwa *et al.*, 2015), triggering the CEO's anger. Learning is vital for minimizing such disruptions (Sadeghi *et al.*, 2021). Therefore, we hypothesize the following:

H1a. When EM is low, and supply chain disruption is high, CEO anger has an increasingly positive effect on recognizing value from major errors. Conversely, when EM is high, and supply chain disruption is low, CEO anger has an increasingly less positive effect on recognizing value from major errors.

2.6 Moderating effects of experience/intuition and positive grief on recognizing value from major errors and learning behavior

Scanning external information about major errors caused by rare events requires certain factors and processes to crystallize this knowledge for better learning. Experience, combined with knowledge, forms the basis for intuition. Intuition is often an automatic and unconscious process that influences decision-making (Kuusela *et al.*, 2020) and provides a rational approach to uncertain events (Hodgkinson and Sadler-Smith, 2018). A CEO's intuition proves advantageous as organizations review external environmental information. Intuition may encourage selective attention to interpreting external events by focusing on specific issues and disregarding others. An intuitive CEO can better determine how to incorporate relevant external information to understand these significant errors. The CEO can make sense of this new information and reduce anxiety and inefficiencies caused by information overload (e.g. Federman, 2020).

Furthermore, we argue that CEO intuition and high positive grief strengthen the relationship between recognizing the value of major errors and learning behavior. Intuition enables the CEO to rely on experience, while positive grief fosters openness to discovery. CEOs with low intuition and low positive grief will be less inclined to investigate the newly found data further. Negative grief will continue to hinder the potential openness of discovering opportunities from these significant errors. Similarly, CEOs who rely on something other than intuition may feel overwhelmed when dealing with an excess of information. Therefore, we hypothesize the following:

H2a. Experience interacts with positive grief to moderate the relationship between recognizing value from major errors and learning behavior. Under conditions of high (low) experience and high (low) levels of positive grieving, there will be a stronger (weaker) relationship between recognizing value from major errors and learning behavior.

The conceptual model, built on the theories mentioned above, is presented in Figure 1.

3. Method
3.1 Research design and sample
To test our hypotheses, we conveniently selected (due to accessibility and feasibility, see Etikan *et al.*, 2016) the top management team members of the companies operating in China. A carefully crafted survey instrument was prepared and translated into the Mandarin language. Using a survey instrument and translation into Mandarin allows for standardized data collection and facilitates the inclusion of a wider range of participants. This methodological choice enables the researchers to gather data from larger sample size and increases the generalizability of the findings within the specific context of Chinese companies. The survey was sent to 985 companies, and the top management team members were asked
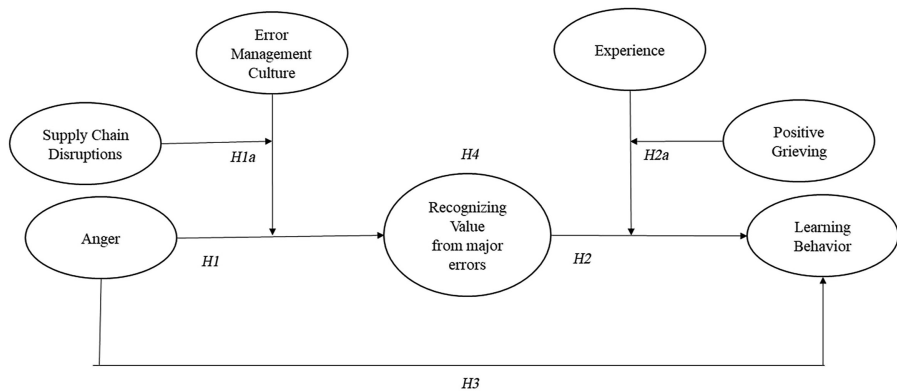
Figure 1.
Conceptual model

Source(s): Own elaboration

to complete the surveys. The data was collected using Google Forms, as the global pandemic has created physical challenges in data collection because of social distancing problems and frequent lockdowns. During the pandemic, data collection was done by most of the researchers because of health precautions (Madhu *et al.*, 2022; Rajagopalan *et al.*, 2022). In all, we received 744 surveys, with a response rate of 75.5%, which is more than acceptable. We compared the first 100 responses with the last 100 to test non-response bias and found no statistical differences between these two data sets.

The sample consisted of 744 respondents, of which 522 (70.2%) were males and 222 (29.8%) were females. Regarding age, Age $_{Min}$ = 29; Age $_{Max}$ = 56; Age $_{Mean}$ = 40.74; Age $_{standard\ deviation}$ = 5.31. As far as education, 486 (65.3%) had undergraduate degrees, 128 (17.2%) had postgraduate (Master's degrees), 101 (13.6%) had college degrees, 24 (3.3%) had high school diplomas, and four (0.5%) had doctoral degrees. Regarding position in organizations, 272 (36.4%) were in top management positions (Vice chairman or vice-president), 147 (19.8%) were general managers, 201 (27%) were departmental heads, 37 (5%) were chairpersons or members of the board of directors, and 34 (4.5%) were grassroots managers (e.g. team leaders). Therefore, most of the respondents were in managerial positions.

3.2 Measures
3.2.1 Main variables. Anger was measured using three items adapted from Blau (2007). The reliability coefficient, Cronbach alpha, was 0.78. Recognizing value from errors was measured with five items adapted from Lichtenthaler (2009), and the reliability coefficient was 0.85. EM culture was measured using 11 items adapted from van Dyck *et al.* (2005). Two items were dropped from the analysis because of low factor loadings. The reliability coefficient was 0.932. The experience was measured using eight items adapted from Marks *et al.* (2008). The final analysis included six items since the factor loadings were low for two items. The reliability coefficient was 0.75. Learning Behavior was measured using four items adapted from Homsma *et al.* (2009). The reliability coefficient was 0.81. Supply chain disruption was measured using seven items adapted from Bode *et al.* (2011). The reliability coefficient was 0.81. Positive grieving was measured using six items adapted from Blau (2007), and the reliability coefficient was 0.86. All the indicators for these constructs are presented in Table 1.

Variable	Alpha	Standardized Loadings (λ_{yi})	Reliability (λ^2_{yi})	Variance (Var(ε_i))	Variance-extracted Estimate $\Sigma (\lambda^2_{yi})/$ $[(\lambda^2_{yi}) + (Var(\varepsilon_i))]$
Anger	0.78				0.58
I am angry that this crisis has happened		0.71	0.51	0.49	
I have great animosity towards those who caused this crisis to happen		0.81	0.65	0.35	
I feel aggrieved that it should be our company's turn in this crisis		0.75	0.56	0.44	
Recognizing value from major errors	0.85				0.57
For this crisis/critical crisis, we have fully investigated and collected relevant information		0.73	0.53	0.47	
We also looked outside for similar crisis/critical crisis cases		0.76	0.58	0.42	
We quickly recognized the usefulness of this crisis/critical crisis to the growth of new knowledge		0.80	0.63	0.37	
We also try to understand the crisis/critical crisis in depth		0.78	0.61	0.39	
After the crisis, we held a special meeting to analyze it		0.69	0.48	0.52	
EM culture	0.93				0.62
For us, mistakes help to improve our work		0.79	0.63	0.37	
After a mistake occurs, we will make a thorough analysis and study		0.81	0.65	0.35	
After a mistake, we think about how to correct it		0.84	0.71	0.29	
In our team, how can we avoid the mistakes that have happened		0.85	0.72	0.28	
If something is wrong at work, people take the time to figure it out		0.82	0.67	0.33	
After we make a mistake, we try to understand the cause of it		0.74	0.55	0.45	
Our mistakes show where we can improve		0.68	0.47	0.53	
When a mistake is made, we generally know how to correct it		0.75	0.56	0.44	
Although we made mistakes, we didn't give up the ultimate goal		0.79	0.62	0.38	
When someone fails to complete a task because of a mistake, they can rely on other colleagues to help them complete the task (dropped because of low factor loadings)					

(continued)

Table 1.
Results of confirmatory factor analysis and measurement properties

Variable	Alpha	Standardized Loadings (λ_{yi})	Reliability (λ^2_{yi})	Variance (Var(ε_i))	Variance-extracted Estimate $\Sigma\,(\lambda^2_{yi})/$ $[(\lambda^2_{yi}) + (\text{Var}(\varepsilon_i))]$
When an employee makes a mistake, they ask their colleagues for guidance on how to proceed (dropped because of low factor Loadings)					
Experience	0.75				0.55
When it comes to trusting people, I usually rely on my gut feeling		0.70	0.49	0.51	
I often rely on intuition to decide what to do		0.74	0.55	0.45	
I tend to use my feelings to guide my actions		0.68	0.46	0.54	
I think it's foolish to make important decisions based on feelings		0.77	0.60	0.40	
I trust my instincts		0.84	0.71	0.29	
Intuition has always been useful to me in solving problems in my life		0.72	0.52	0.48	
I don't trust my first feelings about people (dropped because of low Factor loadings)					
I don't like having to rely on my gut to make decisions (dropped Because of low factor loadings)					
Learning behavior	0.81				0.74
We learned something new from the crisis/critical crisis		0.70	0.49	0.51	
The crisis/critical crisis has led to some changes (policies, procedures, structures, etc.) in the company		0.93	0.87	0.13	
Does the crisis bring new insights or ideas to the organization?		0.93	0.86	0.14	
Does the organization take corrective action to prevent this from happening again? (dropped because of low factor loadings)					
Supply chain disruptions	0.80				0.56
The disruptions impact company reputation		0.74	0.55	0.45	
The disruptions impact manufacturing		0.75	0.56	0.44	
The disruptions impact sales		0.78	0.61	0.39	
The disruptions impact the functioning of human resources		0.72	0.52	0.48	
The disruptions impact finance		0.73	0.53	0.47	
The disruptions impact the information system		0.71	0.50	0.50	
The disruptions impact the R&D		0.82	0.67	0.33	
Positive grieving	0.86				0.54

Table 1.

(*continued*)

Variable	Alpha	Standardized Loadings (λ_{yi})	Reliability (λ^2_{yi})	Variance $(Var(\varepsilon_i))$	Variance-extracted Estimate $\Sigma (\lambda^2_{yi})/ [(\lambda^2_{yi}) + (Var(\varepsilon_i))]$
Perhaps a positive opportunity will emerge from the crisis encountered by enterprises		0.73	0.53	0.47	
Our company is willing to explore the opportunity brought by the crisis from the crisis of the enterprise		0.75	0.56	0.44	
Our company will try to listen to everyone's views on this crisis with an open mind		0.78	0.61	0.39	
I accept the fact that the crisis has happened		0.69	0.48	0.52	
I think our company can handle the crisis well		0.74	0.54	0.46	
Our company is ready to make the necessary adjustments		0.71	0.50	0.50	

Source(s): Authors' own elaboration

Table 1.

3.3 Confirmatory factor analysis and discriminant validity

Table 1 presents the CFA results and measurement properties. Table 2 presents a comparison of measurement models. The baseline seven-factor model fitted the data well (χ^2 = 2467.12; df = 681; χ^2/df = 3.62; RMSEA = 0.059; RMR = 0.059; Standardized RMR = 0.0342; CFI = 0.918; TLI = 0.897; GFI = 0.878). A comparison of six alternative models with the baseline model reveals that the comparative fit index (CFI) for the seven-factor model was 0.918, and the root mean square error of approximation (RMSEA) was 0.059, thus providing a good fit of the model to the data RMSEA (Browne and Cudeck, 1993). The goodness of statistics for the seven-factor model renders evidence of construct distinctiveness for anger, recognizing value from major errors, EM culture, experience, learning behavior, supply chain disruptions, and positive grieving. In addition, we tested for the discriminant validity of the measures by following the procedures outlined by Fornell and Larcker (1981) and Netemeyer *et al.* (1990). We compared the variance-extracted estimates of the measures with the square of the correlation between the constructs. The variance extracted estimates for all seven variables exceeded the suggested cut-off levels of 0.50 (Fornell and Larcker, 1981). The variance extracted estimates exceeded the squared correlation between the variables and provided discriminant validity. The variance extracted estimates for 'anger' and 'recognizing value from major errors' were 0.58 and 0.57, respectively, and both exceeded the squared correlation between these variables (Φ_{21} = 0.202, Φ^2_{21} = 0.04; $p < 0.05$). The squared correlation between 'EM culture' and 'learning behavior' was lower than the variance extracted estimates of 0.62 and 0.74 respectively (Φ_{21} = 0.46, Φ^2_{21} = 0.21; $p < 0.05$); the squared correlation between 'positive grieving' and 'supply chain disruptions' was lower than the variance extracted estimates of 0.54 and 0.56 respectively (Φ_{21} = 0.448, Φ^2_{21} = 0.20; $p < 0.05$). These statistics, together with the CFA results, offer support for discriminant validity between these seven variables.

3.4 Multicollinearity

Descriptive statistics showing means, standard deviations, and zero-order correlations are presented in Table 3.

Model	Factors	χ^2	df	$\Delta\chi^2$	RMSEA	RMR	Standardized RMR	CFI	TLI=NNFI	GFI
Null		15264.46	741							
Baseline model	Seven factors	2467.12	681		0.059	0.0342	0.0474	0.918	0.897	0.878
Model 1	Six factors: ANG + REC; EMC,EXP LEARNB; SCHDIS, POSGRIEV	4390.34	687	1923.22**	0.095	0.0867	0.124	0.847	0.814	0.803
Model 2	Five factors: ANG + REC + EMC; EXP LEARNB; SCHDIS, POSGRIEV	4355.66	692	1888.54**	0.084	0.549	0.0828	0.849	0.832	0.828
Model 3	Four factors: ANG + REC + EMC +EXP; LEARNB; SCHDIS POSGRIEV	4881.79	696	2414.67**	0.090	0.0611	0.0888	0.714	0.695	0.709
Model 4	Three factors: ANG + REC + EMC +EXP + LEARNB; SCHDIS POSGRIEV	6077.85	699	3610.73**	0.102	0.0686	0.0941	0.622	0.610	0.642
Model 5	Two factors: ANG + REC + EMC +EXP + LEARNB + SCHDIS POSGRIEV	7206.28	701	4739.16**	0.112	0.110	0.111	0.555	0.520	0.599
Model 6	One factor: ANG + REC + EMC +EXP + LEARNB + SCHDIS+ POSGRIEV	8653.23	702	6186.11**	0.123	0.112	0.122	0.456	0.426	0.526

Note(s): **$p < 0.01$; abbreviations: ANG = anger; REC = recognizing errors from major events; EMC = EM culture; EXP = experience LEARNB = learning behavior; SCHDIS = supply chain disruptions; POSGRIEV = positive grieving
Source(s): Authors' own elaboration

Table 2.
Comparison of
measurement models

	Mean	SD	1	2	3	4	5	6	7
1. Anger	2.03	0.63	1						
2. EM culture	4.61	0.46	−0.05	1					
3. Recognizing value from major errors	4.47	0.61	0.01	0.44**	1				
4. Experience	3.59	0.34	0.15**	−0.06	−0.01	1			
5. Positive grieving	2.99	0.49	0.03	0.31**	0.40**	0.03	1		
6. Supply chain disruptions	3.55	0.59	0.12**	0.06	0.14**	0.14**	−0.04	1	
7. Learning behavior	4.53	0.59	0.07*	0.46**	0.60**	0.03	0.45**	0.13**	1

Note(s): ** Correlation is significant at the 0.01 level (two-tailed); * correlation is significant at the 0.05 level (two-tailed)
Source(s): Authors' own elaboration

Table 3.
Descriptive statistics: means, standard deviations and zero-order correlations

Since multicollinearity is common in survey research, we checked for multicollinearity between the variables by carefully reviewing the correlation matrix. If the correlation between the variables is more than 0.8, multicollinearity may be problematic (Kennedy, 1979). Table 3 shows that none of the correlations were more than 0.60. We conducted an additional check for multicollinearity by examining the variance inflation factor (VIF). The outer VIF values for all indicators were less than 5. These results supported that multicollinearity is not a problem in this study (Kennedy, 1979).

3.5 Common method variance
One of the problems inherent in social science research is common method variance. To address this problem, we did Harman's single-factor test, as Podsakoff *et al.* (2003) suggested. The single factor accounted for 33.50% variance, suggesting that common method variance is not a problem. The single factor (See Table 2) showed the following fit: ($\chi^2 = 8653.23$; df = 702; RMSEA = 0.123; RMR = 0.112; Standardized RMR = 0.122; CFI = 0.456; TLI = 0.426; GFI = 0.526). Compared to the five-factor measurement model, the one-factor model showed a poor fit ($\Delta \chi^2 = 6186.11$, Δ df = 15, $p < 0.01$). We also randomized the survey questions to minimize common method bias.

4. Hypotheses testing
To test H1-H4, we used Hayes's (2018) PROCESS macros (Model # 4) and presented the results in Tables 4 and 5.

The regression coefficient of anger on recognizing value from errors was positive and significant (β = 0.61; $p < 0.05$), thus supporting Hypothesis 1 that anger is positively

Hypotheses	Relationship	β	se	t	p	Boot LLCI	Boot ULCI	Result
H1	Anger → Recognizing value	0.61	0.261	2.33	0.039	0.2052	0.3173	Supported
H2	Recognizing value → Learning behavior	0.45	0.031	14.51	0.000	0.4340	0.9306	Supported
H3	Anger → Learning behavior	0.24	0.035	2.30	0.024	0.0396	0.1744	Supported

Source(s): Authors' own elaboration

Table 4.
Testing H1, H2 and H3

associated with recognizing value from errors. As in Hypothesis 2, the regression coefficient of recognizing value on learning behavior was positive and significant ($\beta = 0.45$; $p < 0.001$). The regression results also confirm the positive association of anger with learning behavior ($\beta = 0.61$; $p < 0.05$), thus supporting H3.

Hypothesis 4 proposes recognizing value from errors mediates the relationship between anger and learning behavior. To test this hypothesis, we measured anger's indirect effect on learning behavior through recognizing value from the errors. As can be seen in Table 5, the indirect effect (-0.0110) was not significant (s. e. 0255), and the bootstrapping results based on 20,000 bootstrap samples show that 95% Confidence Intervals (CIs) are between -0.0526 and 0.0476. Because zero is contained in the CIs, the mediation Hypothesis 4 is not supported.

4.1 Results of moderation (testing H1a and H2a)

To test H1a and H2a, we used Hayes's (2018) PROCESS macros model # 11 and model #12, respectively, and presented the results in Table 6.

The regression coefficient of the three-way interaction term (anger x EM culture x supply chain disruptions) was negative and significant ($\beta_{\text{anger x EM culture x supply chain disruptions}} = -0.38$; $p < 0.05$), thus supporting the moderation Hypothesis 1a. We have presented the interaction effects in Figure 2 by showing the dispersion of moderators in two panels.

As can be seen in Figure 2, when EM culture is 'low' and under the conditions of 'low' supply chain disruptions, the slope of the anger-recognizing value from error relationship was negative, whereas, under the conditions of 'high' supply chain interruptions, the slope of the curve was positive. When we see the conditions of 'high' EM culture conditions in panel 2, it can be observed that the slope of the curve becomes positive when supply chain

		Effect	se	Boot LLCI	Boot ULCI
Indirect effect	Anger → Recognizing value → Learning behavior	-0.0110	0.0255	-0.0526	0.0476

Note(s): $N = 744$ Boot LLCI refers to the lower bound bootstrapping confidence intervals. Boot ULCL refers to the upper bound bootstrapping confidence intervals. Number of bootstrapping samples for this bias corrected bootstrapping confidence intervals are 20,000. The level of confidence for all confidence intervals in output was 0.95. We have four decimal digits for bootstrap results because some values may be very close to zero
Source(s): Authors' own elaboration

Table 5.
Indirect effect (H4)

Hypotheses	Relationship	β	se	t	p	Boot LLCI	Boot ULCI	Result
H1a	Anger x EM culture x Supply chain interruptions → Recognizing value	-0.38	0.061	-6.22	0.000	-0.3023	-0.0162	Supported
H2a	Recognizing value x Experience x Positive grieving → Learning behavior	-0.26	0.114	-2.27	0.023	-0.3581	-0.1672	Supported

Source(s): Authors' own elaboration

Table 6.
Results of moderation analysis

interruptions are low. The curve becomes negative when supply chain interruptions are high. In other words, when the supply chain interruptions were high, the increase in anger reduced recognizing value from errors. When the EM culture is high, the CEO does not need to recognize value from errors. These graphs in the two panels imply that EM culture and supply chain disruptions have different effects on recognizing value from errors, thus supporting Hypothesis 1a.

The regression coefficient of the three-way interaction term was negative and significant (β Recognizing Value x Experience x Positive Grieving) $= -0.26$; $p < 0.05$), thus supporting the moderation Hypothesis 2a. We have presented the interaction effects in Figure 3 by showing the dispersion of moderators in two panels.

As shown in Figure 3, when experience is 'low,' under 'high' positive grieving, the slope of recognizing value from errors – learning behavior was steeper than when positive grieving is 'low.' Further, as recognizing value from errors increases from low (mean − 1 sd) to high (mean + 1 sd), the gap between the slope of curves between 'high' and 'low' positive grieving increases. Panel 2, which explains the effect of the interaction between recognizing value from errors and positive grieving on learning behavior, shows that when experience increases, the curve gap tends to decrease. Hence, experience enhances the interaction effect of recognizing value from errors and positive grieving. These results imply that experience and positive grieving affect learning behavior differently, thus supporting moderation Hypothesis 2a.

Source(s): Own elaboration
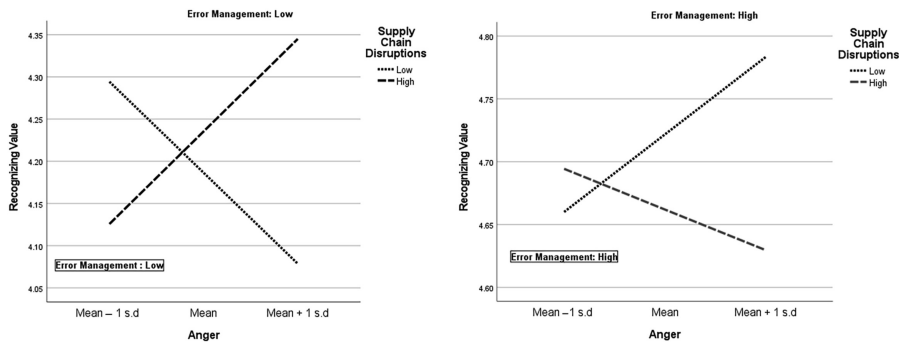
Figure 2.
Three-way interaction graph – moderation effects of anger, supply chain disruptions and EM culture on recognizing value from errors

Source(s): Own elaboration
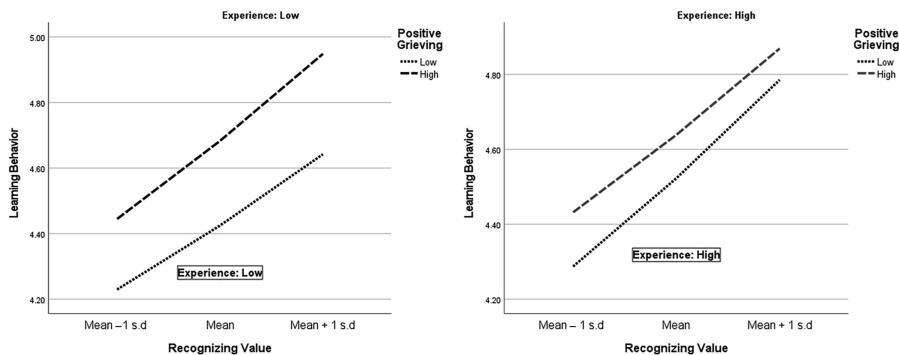
Figure 3.
Three-way interaction graph – moderation effects of recognizing value from errors, positive grieving and experience on learning behavior

5. Discussion

In this study, we developed and tested a conceptual model that explores how emotions, particularly executive anger, shape the perception of error value and subsequent learning behavior within the context of EM. We used the Affect-Cognitive Theory of management decisions (Cristofaro, 2019, 2020) and Organizational Learning Theory (Edmondson, 1999; Wiese and Burke, 2019) as the theoretical frameworks to guide our research. After assessing the survey instrument's psychometric properties, we tested the hypotheses using Hayes's (2018) PROCESS macros.

Our findings directly answer the research question of this work: *How does executive anger shape the perception of error value and subsequent learning behavior?* These findings advance the theoretical implications of the Affect-Cognitive theory of management decisions and Organizational Learning theory and provide valuable insights for management practice, emphasizing the nuanced role of executive emotions.

First, we found a positive association between CEO anger and recognizing value from major errors, contrary to the notion that negative emotions hinder learning (Lerner and Tiedens, 2006). This result aligns with the Affect-Cognitive Theory, which suggests that anger can stimulate learning by driving the exploration of error causes and initiating change. CEOs who experience anger are motivated to understand the factors that led to errors, which provides valuable insights and knowledge acquisition. By invoking the Affect-Cognitive Theory (Cristofaro, 2019, 2020), it becomes evident that in a practical sense, managers need to understand that the emotion of anger, when channeled correctly, can be a potent driver for organizational learning. With our focus on CEO anger as a trigger for organizational learning, we are taking a more micro examination of leadership/organizational learning. For example, Lundquist *et al.* (2023) provided a significant literature review on leadership and learning. One finding was the extensive focus of leadership styles on learning, including transformational, transactional, charismatic, inspirational, and servant-oriented.

Second, we found a positive relationship between recognizing value from errors and learning behavior (Wiese and Burke, 2019; Edmondson, 1999). CEOs who recognize the value of errors are more likely to engage in learning activities and behaviors, such as collaboration, reflection, and problem-solving. This finding supports Organizational Learning Theory's emphasis on the importance of learning behaviors in generating comprehensive decision-making processes. Drawing from Edmondson (1999) and Wiese and Burke (2019), this suggests that, for practical management, fostering an environment where errors are viewed as opportunities rather than setbacks can significantly benefit organizational learning processes.

Third, we confirmed a positive association between CEO anger and learning behavior (Lerner *et al.*, 2015). CEOs who experience anger are more motivated to engage in learning behaviors and take control of the situation. By extrapolating insights from Cristofaro (2019), from a management practice perspective, recognizing and addressing CEO emotions can be critical in cultivating an organization's learning culture.

Although the mediation hypothesis of recognizing value from errors in the relationship between anger and learning behavior was not supported, the direct relationship between anger and learning behavior was evident. This finding supports the Affect-Cognitive Theory's proposition that affective states can directly influence learning behavior; this challenges traditional management practices that might aim to suppress negative emotions, suggesting a more nuanced approach to executive emotions in the workplace.

Moreover, we investigated the moderating effects of supply chain disruptions and EM culture on the relationship between anger, recognizing value from errors, and learning behavior. Drawing from Edmondson (1999) and Wiese and Burke (2019), the results illuminate how external factors like supply chain disruptions and internal cultural factors like EM can either amplify or dampen the effect of emotions on organizational learning. These

findings emphasize the influence of contextual factors on learning processes and directly affect how organizations prioritize resource allocation in supply chain management and organizational culture development.

Furthermore, we explored the moderating effects of experience/intuition and positive grief on the relationship between recognizing value from errors and learning behavior. Drawing upon Madsen and Desai (2010) and Kuusela *et al.* (2020), the intersection of intuition and positive grief with organizational learning underscores the importance of leveraging experiential and emotional intelligence in management practice. CEOs with more experience can better leverage their knowledge to enhance learning outcomes. CEOs with a positive mindset of grief are more open to discovering opportunities from errors, leading to more effective learning.

6. Implications
6.1 Theoretical implications
Our study contributes significantly to the literature on EM, particularly among top management team members. We investigate how emotions, especially executive anger, influence the perception of error value and subsequent learning behavior in EM. First and foremost, this study highlights the impact of emotions on learning, which is especially pertinent when considering recent assertions made by other scholars regarding the learning framework within corporate training systems. Some scholars argue that positive emotions primarily drive learning (Clarke, 2010; Barile *et al.*, 2023). In contrast, our findings introduce a more intricate understanding by revealing a nuanced relationship between emotions and learning. While positive emotions indeed wield influence, our research underscores the pivotal role of anger and the recognition of value from errors in shaping the learning behavior of top management team members. This perspective enriches the broader understanding of how emotions influence the learning process. Furthermore, our results amplify and complement the work conducted by Wang *et al.* (2023). Their study, based on data from high-tech industries in mainland China, highlights the potential negative impact of anger on learning from failure. It is important to acknowledge potential contrasts in findings between their study and ours. While they explore how anger may hinder the learning process from failure, our study unveils the multifaceted role of anger in learning. Despite these differences, the consistent thread underlining anger's significance as a learning catalyst remains evident. This observation aligns harmoniously with the contemporary theoretical perspective of the Affect-Cognitive Theory of management decisions, which interprets executive choices as the outcome of the interplay between emotions and cognition, with emotions playing a paramount role (Cristofaro, 2020). Within this context, it becomes imperative for organizations to acknowledge the value embedded in mistakes and harness them as catalysts for learning – an imperative that also extends to managers. Furthermore, organizational learning occurs within a complex social environment, encompassing influential stakeholders and significant expectations (Cheng and Jiang, 2023). Notably, our study illuminates an essential facet: influential stakeholders actively strive to integrate and validate crucial elements of the social milieu, particularly when fulfilling these expectations remains a priority.

The absence of support for serial mediation underscores a secondary contribution of our research. However, the positive correlation between anger and learning behavior suggests a managerial interest in extracting insights from decisions influenced by anger. This dynamic is indispensable for the effective functioning and success of an organization. Nonetheless, an intriguing question emerges: At what juncture does anger impede organizational learning? An exploration of the persistence and impact of anger on learning, potentially across different

organizational levels, could be pursued. Additionally, investigating the differing impacts of emotions on learning beyond anger alone could yield valuable insights.

The third significant stride of this research lies in unveiling the dual moderation effect emanating from the EM culture and supply chain disruptions. The study uncovers the interplay between supply chain disruptions, the EM culture, anger, and value recognition from major errors. Remarkably, when supply chain disruptions are heightened, a lower level of EM corresponds to increased value recognition from major errors – even in the presence of elevated anger. This novel concept of moderated moderated-mediation adds to the evolving literature on EM.

Fourth, our study further uncovers the moderating roles of experience and positive grieving, substantially contributing to existing scholarship. Positive grieving influences the relationship between recognizing value from major errors and experience, with both factors intricately impacting learning behavior. This threefold interaction, encompassing the recognition of value, experience, and positive grieving, represents a relatively uncharted territory within prior research and accentuates the importance of CEOs' experience in shaping learning behavior.

Fifth, our model furnishes a comprehensive analysis of the intricate learning process. All the constructs considered are relevant to the underlying research question. As we look to the future, organizational learning models should encapsulate these multifaceted interactions that influence learning from significant errors. Incorporating variables like operational processes, stakeholder characteristics/emotions, technology, slack resources, executive personality, and TMT decision-making processes (including trust, conflict, and diversity) can provide a more holistic understanding of the organizational learning process. Moreover, the amalgamation of psychological and sociological frameworks could offer insights into the emotional and social dimensions of organizational learning, thereby enriching both theoretical frameworks.

In summary, the identified moderators (EM culture, supply chain disruptions, experience, positive grieving) emanating from our study yield significant insights for the literature. This study effectively integrates the Affect-Cognitive Theory of management decisions and Organizational Learning Theory. Through these contributions, our research strives to deepen the comprehension of emotions' profound influence on the intricate learning process.

6.2 Practical implications

The double-layered moderated-mediation model presented in this study holds significant implications for practicing managers, offering actionable insights that bridge theoretical understanding with practical application.

First, managers must acknowledge that anger, an inherent aspect of individuals' personalities, can be harnessed as a catalyst for positive change when it drives learning from mistakes. Recognizing this, managers should be willing to learn from their errors, as failures can have adverse implications for the organization. For instance, imagine a project encountering setbacks that evoke frustration among the team. A manager can transform their anger by convening discussions to analyze the setbacks openly, emphasizing the value of learning. This reframing turns negative emotions into drivers for constructive improvement. When managers channel their anger towards extracting lessons from errors, they inadvertently emphasize the value embedded in major mistakes, prompting them to engage actively in learning behavior. For example, a manager frustrated by a product launch failure might lead a debriefing session where team members dissect the errors made, generating insights to prevent future recurrence. In organizational learning, anger establishes a constructive relationship with specific major errors. However, prudent management is essential to ensure that the expression of anger does not extend to negative consequences within the organization's internal environment.

Second, this study underscores the pivotal role of EM within the learning process. Moreover, it suggests that CEO anger can substitute for EM. This, coupled with positive

grieving and managerial experience, further facilitates learning. For instance, in the face of
supply chain disruptions, a CEO might encourage the management team to view the situation
as an opportunity for growth. This approach fosters resilience and innovative problem-
solving in the face of challenges. Consider a manufacturing company grappling with a
sudden supply chain disruption in a practical scenario. The CEO's display of constructive
anger during a company-wide meeting motivates managers to address the issue promptly
and encourages them to adapt creatively to minimize disruptions. This demonstration of
anger as a catalyst for change echoes the principles outlined in the study. Organizations are
encouraged to foster a climate that enables managers to focus on the positive aspects of
situations rather than fixating on the negative facets of errors. By perceiving potential
opportunities within crises and actively listening to team members, managers are better
positioned to navigate challenges effectively. Organizations should remain open to exploring
opportunities emerging from these critical junctures.

Third, the concept of positive grieving, which encapsulates acceptance and exploration
(Blau, 2006), holds paramount importance. Organizations should implement mechanisms and
policies that create a supportive environment for employees to undergo a productive process
of grief transformation, wherein negative grief can evolve into positive growth. In this
context, EM practices should be interwoven into these mechanisms and policies. It becomes
incumbent upon top management to champion cultivating such an inviting atmosphere.
Failing to align culture, values, and training initiatives could inadvertently erect cultural
barriers that hinder favorable responses. Addressing the emotional framework of human
resources becomes crucial, as it can amplify their motivation to learn (Ryan and Deci, 2020;
Barile *et al.*, 2023). For instance, a company that fosters an atmosphere of psychological safety
and openness encourages employees to express their concerns openly. If a project fails to
meet its targets, an employee's willingness to share their role in the error can lead to collective
brainstorming and improvement. This approach reflects the principles of positive grieving
and encourages employees to engage in the EM process.

In summary, the insights derived from this conceptual model hold valuable implications
for managers aspiring to glean wisdom from their mistakes. The model elucidates the
intricate relationship between anger and learning behavior while also pinpointing the
boundary conditions that enhance the anger chain, recognizing value from major errors and
subsequent learning behavior to benefit organizations. By incorporating these insights into
their management strategies, leaders can optimize the learning potential of the organization's
challenges and errors, fostering a culture of growth and resilience.

7. Conclusion
The objective of this study was to examine the relationship between anger and the learning
behavior of managers. As companies face intensifying competition in their quest for
sustained competitive advantage, mistakes committed by top management team members
can occur. Therefore, managers must recognize the value of these errors and actively engage
in learning behavior.

However, it is essential to acknowledge the limitations of this research. First, the study
relied on individual respondents from organizations, which may introduce some distortion
compared to team-based research. Ideally, data collected from top management team
members and aggregated with consideration of within-group agreement would yield more
robust and reliable results. Nevertheless, if single respondents honestly assess their behavior
without bias, the findings should align with team-based data analysis. Second, this study
focused on a limited number of variables and did not explore the antecedents of anger. Future
research could identify the factors leading to anger and examine the contextual elements
contributing to it. Third, it is essential to recognize that not all managers may be willing to

learn from their mistakes. The manager's personality is a significant variable not considered in this study. Personality traits can be pivotal in learning behavior and influence how individuals respond to anger.

Furthermore, this research focused explicitly on top management team members in a densely populated country (China). The cultural differences between executives in China and those in other countries may limit the generalizability of the findings to organizations worldwide.

The present study paves the way for future research in several areas. Future studies can explore the antecedents of anger and identify the factors that trigger this emotion. However, investigating the contextual factors contributing to anger and exploring their consequences would provide a more comprehensive understanding. In addition, future research can examine the trust among top management team members, the willingness of the board of directors to tolerate mistakes made by managers, and the extent of damage caused to the organization by these errors. These variables can shed light on the organizational dynamics that influence the relationship between anger and learning behavior. Lastly, considering the political climate and the psychological contract between managers and the organization as additional variables would contribute to a more nuanced understanding of the topic.

In conclusion, while this study contributes valuable insights, there are opportunities for future research to expand our understanding of the relationship between anger and learning behavior in managers.

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