

Singapore Management University Institutional Knowledge at Singapore Management University

Research Collection Lee Kong Chian School of
Business

Lee Kong Chian School of Business

3-2017

Learning from others' failures: The effectiveness of failure stories for managerial learning

Ronald BLEADOW

Singapore Management University, RBLEADOW@smu.edu.sg

Bernd CARETTE

Ghent University

Jana KUEHNEL

Universitat Ulm

Daniela PITTIG

Kienbaum Consulting

DOI: <https://doi.org/10.5465/amle.2014.0169>

Follow this and additional works at: https://ink.library.smu.edu.sg/lkcsb_research_all

Part of the [Human Resources Management Commons](#), and the [Organizational Behavior and Theory Commons](#)

Citation

BLEADOW, Ronald; CARETTE, Bernd; KUEHNEL, Jana; and PITTIG, Daniela. Learning from others' failures: The effectiveness of failure stories for managerial learning. (2017). *Academy of Management Learning and Education*. 16, (1), 39-53. Research Collection Lee Kong Chian School of Business.

Available at: https://ink.library.smu.edu.sg/lkcsb_research_all/16

This Journal Article is brought to you for free and open access by the Lee Kong Chian School of Business at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection Lee Kong Chian School of Business by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email libIR@smu.edu.sg.

Learning From Others' Failures: The Effectiveness of Failure Stories for Managerial Learning

RONALD BLEADOW

Singapore Management University, Singapore

BERND CARETTE

Ghent University, Belgium

JANA KÜHNEL

Ulm University, Germany

DIANA BISTER

Kienbaum Consulting

We argue that other peoples' failures provide a neglected source of managerial learning that is associated with enhanced learning transfer. Due to their negative valence, stories about other peoples' failures as compared to stories about other peoples' successes should elicit a more pronounced motivational response, such that people elaborate the content of failure stories more actively. As a consequence, the knowledge gained from failure stories will more likely be applied on a transfer task. We expect this motivational response to failure stories and its benefits for learning to be most pronounced for people who view failures as valuable learning opportunities. We report an experimental study, in which participants were exposed to a managerial training with stories about either managerial successes or managerial failures that delivered the same learning content. Results showed that stories about managerial failures led to more elaboration and learning transfer, in particular for participants who see the learning potential of failures. We discuss how failure stories can be used to stimulate managerial learning in educational and organizational settings.

"The wise man learns from the mistakes of others."—Otto von Bismarck

In management education, consensus is growing regarding the critical role of experience for learning (Klimoski & Amos, 2012). A vast body of research has reported developmental effects of going through direct, firsthand managerial experiences (e.g., DeRue, Nahrgang, Hollenbeck, & Workman, 2012; Eddy,

Tannenbaum, & Mathieu, 2013; Erez et al., 2013; Ng, Van Dyne, & Ang, 2009). Yet, people also go through managerial experiences indirectly by listening to, reading about, and observing other people's behavior and its consequences. Vicarious learning supplements direct personal experience and enables people to draw lessons from a wide scope of experiences within short time frames (Hoover, Giambatista, & Belkin, 2012). Learning from others vicariously may be especially useful in the case of failures, because learners can then evade similar failures and adverse personal and organizational consequences. Indeed, others' failure has proven to be a fundamental source of learning for individuals and organizations across

We would like to thank the editor, three anonymous reviewers, and our colleagues who provided feedback to earlier versions of the manuscript: Michael Bashshur, Devasheesh Bhave, Kraivin Chintakananda, Roy Chua, Don Ferrin, Mengzi Jin, Jochen Reb, Samantha Sim, and Kenneth Tai.

a variety of contexts (e.g., the railroad industry, Baum & Dahlin, 2007; fire stations, Joungh, Hesketh, & Neal, 2006; hospitals, KC, Staats, & Gino, 2013; the financial industry, Kim & Miner, 2007; and the aerospace industry, Madsen & Desai, 2010).

Despite the learning potential inherent in others' failures, vicarious learning in management education focuses primarily on successful firms and managerial role models. Bestselling managerial books and case studies, such as Jim Collin's (2001) *Good to Great* or General Electric's success story during Jack Welch's reign, are expressions of a one-sided focus on other people's successes. The "undersampling of failure" entails that "aspiring managers observe the practices of top managers, but they may not observe the practices of those individuals who fail to be promoted" (Denrell, 2003: 227). This prevalent focus on managerial success stories suggests that current learning practices fall short of fully utilizing the learning potential inherent in other people's experiences. A one-sided focus on others' successes at the expense of their failures may hinder the development of managerial competence, because learners derive specific lessons from failures, and respond differently to success and failure. In line with psychological research suggesting that bad events have more profound psychological consequences than good events (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001), people may actually learn more and retain a more elaborate memory of other people's failures as compared to their successes.

The aim of our work here is to compare the learning potential of other people's failure and success experiences in the context of management education. We argue that due to the difference in affective valence between stories about failures and successes, people (1) elaborate more on, and therefore, (2) transfer more knowledge from managerial failure stories as compared to managerial success stories. We discuss people's attitude toward failure as a boundary condition for how effectively they learn from failure. We test these hypotheses with an experimental study on a managerial skill training that exposed learners either to stories about managerial successes or managerial failures and compared consequences for learning. The article thereby contributes to the understanding of the psychological underpinnings of learning and informs management educators on the importance of incorporating managerial failures in the design of courses.

THEORETICAL BACKGROUND AND DEVELOPMENT OF HYPOTHESES

Learning From Others' Experiences

A fundamental form of learning occurs by way of the observation of others' behavior and its consequences (Bandura, 1977). This *vicarious learning* enables people to acquire complex sequences of behavior without executing the behavior. An important component of vicarious learning is the positive or negative consequences associated with a model's behavior (Lockwood, Jordan, & Kunda, 2002). These consequences increase or decrease the likelihood that an observer will replicate the model's behavior (Manz & Sims, 1981). Vicarious learning is not limited to social learning among individuals: It also plays an important role for organizational learning. The literature on organizational learning has focused primarily on how organizations learn vicariously from a model's success (Sitkin, 1992) and has shown that organizations acquire knowledge vicariously and replicate routines, strategies, and designs of other successful organizations (e.g., Burns & Wholey, 1993; Ingram & Baum, 1997).

Recently, scholars have paid increasing attention to learning from others' failures. For instance, Joungh et al. (2006) showed that exposing firefighters to case studies of experienced employees who committed errors on the fire ground yields more adequate courses of actions and better problem identification on a posttraining task, as compared to exposing firefighters to case studies of experienced employees who did not make errors. In a sample of 71 cardiothoracic surgeons who completed more than 6,500 cardiac procedures over the course of 10 years, KC et al. (2013) examined how vicarious learning reduced patient mortality and found that surgeons learn more from others' failures than from others' successes. Recent research on organizational learning in the financial and aerospace industries suggests that organizations learn more effectively from others' failure than from others' success and that knowledge gained from others' failure experiences depreciates more slowly (Baum & Dahlin, 2007; Kim & Miner, 2007; Madsen & Desai, 2010). As noted by Kim and Miner (2007: 687), failure and near-failure of firms can serve as "wake-up calls, encouraging survivors to search for new actions or to devise new business models or routines."

Vicarious Learning in Management Education

The widespread use of case studies, benchmarking initiatives, video vignettes, and real-life observations

in educational as well as in organizational settings shows that vicarious learning is a cornerstone of managerial learning (Christensen & Carlile, 2009; Grossman, Salas, Pavlas, & Rosen, 2013; Hoover et al., 2012). However, as noted by Mauboussin (2012: 52), "the most common method for teaching business management is to find successful businesses, identify their common practices, and recommend that managers imitate them." Indeed, an examination of The Case Centre's top-40 bestselling cases revealed that although cases typically describe a manager whose organization is facing a challenging situation that could lead to failure, virtually all of the cases turned into successes for the organization. Examples of these successful organizations include McKinsey, Apple, Zara, Canon, and Virgin. This emphasis on managerial success stories at the expense of failure stories suggests that management educators have not yet incorporated emerging evidence on the learning potential of failure stories into their teaching.

We use the terms "failure stories" and "success stories" to refer to narratives of specific examples of managerial failure and success. Such stories typically describe a real or realistic organizational setting and a chain of events from the point of view of a particular manager, employee, or set of actors (Goodman & O'Brien, 2012). *Failure stories* are narratives in which a protagonist reports an erroneous course of action that eventually led to a negative outcome. By choosing the wrong actions or by failing to perform the right actions, the outcomes the protagonist intended were not achieved. Conversely, *success stories* contain a description of a set of actions that led to intended outcomes. In both cases the narrator establishes a causal link between actions and their consequences. Because these consequences are positive for success stories and negative for failure stories, a critical difference between success and failure stories resides in their affective valence.

The following scenario, which we used in the experimental study reported below, illustrates the concept of success and failure stories. The scenario tells the story of an entrepreneur who wants to open a coffee shop that sells novel coffee creations. In the success story condition, the entrepreneur spends money on a market analysis to evaluate the best location for the coffee shop. At first, the entrepreneur wants to open the new business near a university, but the results of the market analysis show that students are not willing to spend a premium on exclusive coffee creations. As a consequence, the

entrepreneur opens the coffee shop in the city center, and it becomes a successful business.

In the failure-story condition, the entrepreneur decided not to spend money on a market analysis and opened the coffee shop near the university. Because students could not afford expensive coffee creations, the business had to close after a few months. As this example illustrates, both stories communicate the same knowledge about effective managerial practices; they differ in whether this knowledge is embedded in a success or failure story. We argue next that the difference in affective valence between success and failure stories results in different motivational responses and learning outcomes.

The Effectiveness of Failure Stories for Managerial Learning

The phrase "bad is stronger than good," coined by Baumeister et al. (2001), refers to a fundamental observation which forms the basis of our hypothesis regarding the effectiveness of failure stories for managerial learning. The phrase aptly summarizes the pervasive finding that bad events have more profound psychological consequences than good ones. People pay more attention to, engage in more thinking about, and retain a more elaborate memory of negative as compared to positive events. Moreover, punishment has stronger effects on learning than do rewards in such a way that people learn more rapidly and more easily from punishment (e.g., Abele, 1985; Robinson-Riegler & Winton, 1996). According to Baumeister et al. (2001), the underlying reason for the stronger reaction to adverse events is evolutionary adaptation: The potential costs of not reacting to a single adverse event, which may threaten survival, are higher as compared to not reacting to a single positive event, such as an opportunity to obtain a reward. Thus, the tendency to show a more pronounced motivational response to adverse events and to process negative information more thoroughly is an adaptive characteristic of the psychological system.

Most studies on how people respond to adversity have focused on personal rather than vicarious experience (Seery, Leo, Lupien, Kondrak, & Almonte, 2013). For instance, Bledow, Schmitt, Frese, and Kühnel (2011) argued that people respond to adverse work events, including failures, with an affective shift and high work motivation. In an experience-sampling study with software engineers, the authors showed that participants displayed the

highest level of work engagement after they experienced adverse events such as failures. Further studies showed that people are often motivated to generate new ideas after experiencing or recollecting an adverse event in an attempt to find novel solutions after available responses have failed (Bledow, Rosing, & Frese, 2013). The common thread of these studies is that people display a motivational response to the negative affective valence of the adverse event.

Our work here extends this line of inquiry to the situation where people are confronted with others' experiences and investigates the learning potential of other people's failures on complex managerial tasks that lead to negative consequences. We hypothesize that the negative valence of failure stories will result in a motivational response on the side of the listener to elaborate the information conveyed by the stories. Stories about other people's experiences can be processed on an elaboration continuum from a peripheral to a central route depending on a person's motivation, ability, and attitude (Petty & Wegener, 1999). We argue that failure stories are more likely than success stories to activate the central route so that learners are motivated to allocate cognitive resources and intensively elaborate on the content of the stories. More specifically, failure stories should seize attention and elicit reflection so that the learner actively decomposes the story and analyzes the critical elements that were responsible for failure. This intensive elaboration, which is induced by the negative valence of failure stories, should lead to adaptations of a person's action-related knowledge for similar situations (Kuhl, 2000). As a result, the newly acquired knowledge is accessible at later points in time, when a person is in a relevant situation. By contrast, the positive valence of success stories should elicit processing by way of the peripheral route, so that the content is processed only superficially and has less impact on the learner's future actions (cf. Schwarz & Bless, 1991).

As a result of enhanced elaboration of relevant information, knowledge that is learned from listening to failure stories should more likely be applied on a transfer task as compared to knowledge that is learned from success stories. A protagonist's actions that led to failure will be associated with failure, and a person should refrain from using these actions in similar situations. Critical courses of actions that were omitted by the protagonist will be encoded as significant for the situation, and a person should be more likely to engage in them when faced with

a similar situation. Our line of argument is illustrated by one of the failure stories we used in the experiment. In this failure story, a leader narrates about a project team she was responsible for that developed a new product and ultimately failed. She explains that one of the reasons for failure was that she failed to ensure heterogeneity of skills among team members. In the success story, she explained that one of the reasons for the success of the team was that she composed a heterogeneous team. We argue that framing the story as a failure will elicit elaboration on the importance of heterogeneity so that listeners integrate this information in their knowledge on team effectiveness. At a later point in time, when listeners are in a similar situation that involves composing a team, they will consider heterogeneity of team members. For the success story, we argue that less attention is paid to heterogeneity as a distinctive cause of success. The stream of the narrator's story is not decomposed and analyzed for the critical elements. As a consequence, it is less likely that the learner integrates the information and applies it on a transfer task. We thus propose:

Hypothesis 1: Failure stories lead to more learning transfer than success stories.

We expect that people respond to failure stories with a heightened level of elaboration, which in turn leads to enhanced learning transfer (see Figure 1). We use the concept of *elaboration* to refer to the extent that people allocate cognitive resources and display self-directed learning when processing vicarious experiences (Petty & Cacioppo, 1986). Elaboration implies that people focus their attention on the stories and process their content by way of the central rather than the peripheral route. In the case of vicariously learning from failure stories, people show elaboration if they reflect on causes of failure, consider alternative and more successful courses of action, and construct generalizable knowledge on effective actions in similar situations. By elaborating on failure stories, learners integrate other people's experiences into their own and derive lessons for future situations they may encounter. The integration of learning content into one's personal knowledge base through active elaboration is critical for learning transfer (Frese, 1995; Kozlowski et al., 2001).

Stories that describe successful vicarious experiences, by contrast, should be associated with less elaboration and, as a consequence, lower learning transfer, even if the stories convey the same

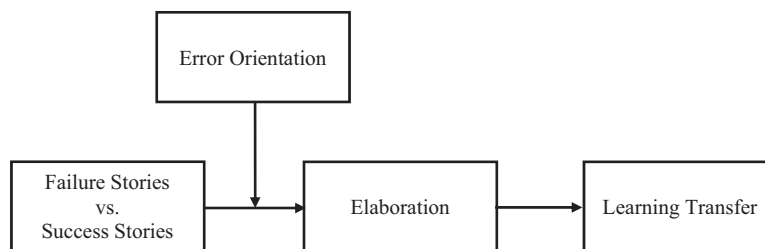


FIGURE 1
Model of the Effect of Failure vs. Success Stories on Learning Transfer

information. The actions of the protagonist and their positive consequences will be processed more peripherally due to the absence of negative, failure-related information. A learner will thus show less elaboration directed at deriving lessons from the stories for effective future actions. The downside of low elaboration associated with success stories should become apparent when the knowledge conveyed by the story could be applied on a transfer task. Knowledge transfer requires that people have developed flexible and generalizable knowledge structures by means of elaboration, which allows them to not merely reproduce information but to apply and adapt knowledge to novel tasks. We thus expect:

Hypothesis 2: Elaboration mediates the effect of failure stories on learning transfer.

Individual Differences in Learning From Failure Stories

The Role of Error Orientation

According to the aptitude–treatment–interaction framework, the effectiveness of instructional methods depends on characteristics of the learner (Snow, 1989). The framework suggests that optimal learning results when the instruction is matched to the aptitudes of the learner. We argue that learners' attitude toward failure influences both the motivational response they display when exposed to failure stories and its consequence for learning transfer. The more people are able to evaluate failure not only as something negative, but also as a valuable source of learning, the more should they elaborate failure stories and display subsequent learning transfer. Differences in people's attitude toward failures are captured by the concept of *error orientation* (Rybowiak, Garst, Frese, & Batinic, 1999). A high error orientation indicates that people have formed a complex attitude toward failure, which

acknowledges that failures, as inherently negative and undesirable events, are also associated with positive consequences, such as learning. A high error orientation thus does not relativize and embellish failure, but indicates a balanced and adaptive evaluative tendency toward failure.

We posit that error orientation moderates the effect of failure stories on elaboration and learning transfer. People with a high error orientation should readily pay attention to and be motivated to learn from failures. They respond to the negative valence of failure stories by elaborating on their content, because they associate positive learning consequences with failure experiences. People with a low error orientation, by contrast, see little value in elaborating the information that is conveyed by failure stories. Although the negative valence of failure stories should also seize their attention, they will engage in less elaboration, because they do not associate positive learning consequences with failure experiences. Empirical evidence on the important role people's attitude plays for learning from failures is provided by the literature on error management training (Keith & Frese, 2008). Error management training influences learners' attitudes so that they see errors as valuable learning opportunities. Experimental studies have shown that error management training improves learning and learning transfer, because it enhances cognitive and motivational processes when people commit errors (Keith & Frese, 2005).

Hypothesis 3a: Error orientation moderates the effect of failure stories on elaboration such that failure stories have a stronger effect on elaboration for people with high error orientation.

Hypothesis 3b: Error orientation moderates the mediated effect of failure stories via elaboration on learning transfer such that failure stories have a stronger mediated effect for people with high error orientation.

METHOD

Participants and Procedure

Fifty students of the social sciences participated in the study, which was announced with notices on campus and introduced as a training on managerial skills, provided to students free of charge. The sample was composed of 60% women. Mean age was 23.62 years ($SD = 3.85$). The study simulated a classroom setting and was administered in sessions with up to 6 participants. Participants worked on all tasks individually and did not interact during the study. They were first asked to fill in a questionnaire and to solve a short managerial case study. This case study was used to determine if there were baseline differences in the ability to solve case studies between experimental conditions. Next, participants were randomly assigned to either the failure story or the success story condition. After the training, which lasted approximately 1 hour, participants solved a managerial case study to measure learning transfer.

Experimental Conditions

Participants were trained on principles of effective management that were communicated through stories told by fictional managers. *Principles of effective management* referred to managerial tasks such as recognizing changes, analyzing a market, managing time effectively, dealing with conflict, and providing leadership. These principles were based on textbooks of organizational behavior. To train participants on these principles, fictional stories were written by the authors. Five stories were constructed that described a scenario, the actions of managers, and their consequences. Each story was then read as a first-person narrative by a different actor, who played the role of the manager. Stories were recorded for later use in the experiment. During the experiment, the five stories were played successively and accompanied by presentation slides that summarized the main content of the stories. After each story participants answered a set of questions. They were asked to write down what the manager had done, how they perceived the manager, and what they could learn from the case study. The answers provided by participants were used as manipulation checks and to assess elaboration.

The experimental manipulation was achieved by embedding principles of effective management in either success or failure stories. The structure of the

scenarios and the training content were the same for both conditions; they differed only in the positive or negative valence of the outcome. In the success-story condition, managers told the listeners how they recognized changes, analyzed the market, managed time effectively, dealt with conflict, or provided leadership, and reported that their actions led to positive outcomes. In the failure-story condition, managers narrated how they failed to take the right actions (i.e., recognize changes, analyze the market, etc.) and reported the detrimental consequences of these failures. Thus, in both conditions narrators communicated the same knowledge about effective management and established an explicit link between the actions of managers and the positive or negative consequences. Moreover, with respect to other features of the stories such as length, level of detail, and the speaker who narrated the story, both conditions were the same.

Measurement

Error Orientation

Error orientation was measured with two subscales of the Error Orientation Questionnaire by Rybowskiak et al. (1999), which each consisted of four items. The two subscales referred to learning from errors (e.g., "*My mistakes help me to improve my work*") and error risk taking (e.g., "*If one wants to achieve at work, one has to risk making mistakes*"). Participants indicated their agreement on a scale ranging from "1 = not at all" to "5 = fully." We focused on the two subscales learning from errors and error risk taking, because they referred to participants' attitudes toward errors. Other subscales of the error orientation questionnaire refer to people's ability to cope with errors, which was not relevant because the study focused on vicarious learning. The eight items of the two subscales loaded on a common factor and the two subscales were correlated with $r = .46$ ($p < .01$). We therefore combined the two subscales. Cronbach's alpha of the combined scale was .85.

Baseline Performance

A short case study was used to examine participants' baseline performance and to rule out pretest differences between the conditions. Participants had to take the perspective of the manager of a fashion store and make decisions drawing on the information they were provided with. The case study did not contain any information that was related to

the content of the failure and success stories. Two independent raters rated the quality and detail of participants' case solution using a coding scheme. Interrater reliability of participants' scores in pretest performance was $ICC = .89$.

Manipulation Check

We asked participants three questions after each story to examine the effectiveness of the manipulation. The first question was an attention check and asked participants to identify wrong actions in the failure-story condition ("What did Mr. / Mrs. ... do wrong?") and right actions in the success-story condition ("What did Mr. / Mrs. ... do right?"). All participants identified at least one experimentally manipulated wrong or right action for each story. We next asked two questions to examine whether the difference in affective valence between success and failure stories influenced participants' affective evaluation of the storyteller. Participants assessed how much sympathy they had for the managers on a 5-point scale between *high sympathy* and *no sympathy at all*, as well as how easily they could put themselves in the manager's place on a 5-point-scale between *very easily* and *not easily at all*. We assumed that the negative valence of failure stories should translate to a more negative evaluation of the protagonist so that participants report less sympathy and are less likely to identify with the protagonist's actions. In support of this reasoning, there were significant differences between conditions. Across the five stories, participants in the failure-story condition reported lower sympathy ($M = 3.42$ vs. $M = 3.11$, $t [48] = 2.20$, $p = .031$) and found it less easy to put themselves in the manager's place as compared to the success story condition ($M = 3.69$ vs. $M = 3.10$, $t [48] = 2.71$, $p = .009$). The difference in affective valence of the stories, which we manipulated by framing stories as failures versus successes, thus had an impact on participants' affective evaluations of the storyteller. This does not imply, however, that elaboration and learning transfer are a function of participants' affective evaluation of the storyteller, which we view as a byproduct of the experimental manipulation. A strong negative evaluation of the protagonist may turn participants' attention away from the content of the stories when they see no relevance of the protagonists' actions for themselves. Results indeed showed that participants' affective evaluation of the protagonists was unrelated to elaboration and learning transfer.

Elaboration

After listening to each story, participants in both conditions were asked the open-ended question, "What can you learn from this case study?" The question focused participants' attention on the story they had just heard and elicited reflection. By answering the question, participants elaborated on the content of the stories and connected them to existing knowledge repertoires and personal goals. For instance, participants elaborated on how the actions the protagonist did or did not perform could inform their own actions when in a relevant situation, such as creating a new business. We asked participants to write down their thoughts as a list of learning points they could derive from the case study. We used the number of distinct learning points that were related to the content of the case studies as a quantitative measure of how intensively participants had elaborated on the stories (cf. Ellis & Davidi, 2005). A rater examined the content of what participants had written down and counted the number of distinctive learning points. Participants generated on average 3.21 ($SD = .93$) learning points for each story.

Learning Transfer

After listening to the stories, participants received a case study about an advertising agency and were asked to work on it by answering five questions. The five questions addressed managerial decisions the head of the agency had to make, which were related to the topics that had been the subject of the success and failure stories. For instance, participants had to plan a meeting with an employee in which they had to dismiss the employee. This question was thematically related to a story regarding an interview with an employee on frequent customer complaints. Knowledge was elements of the stories to answer the case study. For instance, in the success story, the manager had announced the meeting in such a way that the employee could prepare, while the manager in the failure story had failed to do so. If participants indicated on the transfer task that they would prepare the employee for the meeting, they displayed learning transfer. Two independent raters, who did not know in which condition participants had been trained, coded participants' responses. They used a coding scheme to determine how many elements of the stories participants applied on the transfer task. The coding scheme defined 3–5 elements for each story. On average, participants

applied 8.45 elements of the training on the transfer task ($SD = 2.93$). The reliability of the average number of elements counted by the two raters was $ICC = .90$.

Nontransferred Knowledge

To further strengthen the research design, we obtained a nonequivalent dependent variable for which we did not expect an effect of the training conditions. The two raters counted the number of actions participants suggested to solve the transfer task that were not related to the principles of effective management communicated through the failure or success stories. This variable reflects knowledge on managerial actions participants had accumulated from other sources than the training. This knowledge should therefore not be affected by the training condition. Participants named on average 7.48 additional elements ($SD = 3.60$). Interrater reliability was $ICC = .92$.

RESULTS

Table 1 displays descriptive statistics and inter-correlations between the study variables. Comparison of group means showed higher elaboration ($t[48] = 6.22, p < 0.01$) and learning transfer ($t[48] = 2.37, p = 0.02$) in the failure-story condition. The effect size of the manipulation on learning transfer was $d = 0.67$. Table 2 displays regression models with elaboration and learning transfer as outcomes. We included the control variables baseline performance and GPA to examine if the manipulation and its interaction with error orientation had an effect above and beyond these established predictors of learning. In support of Hypothesis 1, Model 1 shows that the failure-story condition led to higher learning transfer than the success-story condition after inclusion of the control variables ($b = 1.67, p = .04$). As shown in Model 5, failure stories also led to higher elaboration than success stories ($b = 1.47, p < .01$). To test whether elaboration mediated the effect of the experimental manipulation on learning transfer,

TABLE 1
Descriptive Statistics and Correlations ($N = 50$)

	1. Experimental condition	2. Error orientation	3. Elaboration	4. Learning transfer	5. Nontransf. knowledge	6. Baseline performance	7. Age	8. Gender	9. GPA
1. Experimental condition ¹	—								
2. Error orientation	-.02	—							
3. Elaboration	.67**	.11	—						
4. Learning transfer	.32*	-.01	.42**	—					
5. Nontransferred knowledge	.06	.10	.15	-.13	—				
6. Baseline performance	.17	.01	.31*	.24 [†]	.23	—			
7. Age	.06	-.09	.02	.19	-.28*	-.13	—		
8. Gender	-.20	.06	-.22	-.24 [†]	.01	-.31*	.05	—	
9. GPA	.06	.02	.24 [†]	.17	.28*	.22	-.47**	-.04	—
Total sample									
<i>M</i>	0.50	3.86	3.14	8.45	7.48	4.10	23.62	0.40	2.04
<i>SD</i>	0.50	0.58	1.18	2.93	3.61	1.34	3.48	0.50	0.54
Failure-Story Training									
<i>M</i>	1.00	3.85	3.88	9.35	7.67	4.32	23.85	0.31	2.00
<i>SD</i>	0.00	0.56	0.98	2.82	4.00	1.22	2.82	0.47	0.57
Success-Story Training									
<i>M</i>	0.00	3.86	2.33	7.47	7.27	3.85	23.38	0.50	2.07
<i>SD</i>	0.00	0.61	0.76	2.79	3.19	1.45	4.77	0.51	0.52

Note: ¹ Experimental condition: 0 = success-story training, 1 = failure-story training; Gender: 0 = women, 1 = men; GPA: higher values indicate better grades.

** $p < .01$, * $p < .05$, [†] $p < .10$

TABLE 2
Hierarchical Multiple Regression (*N* = 50)

<i>Dependent variables</i>	<i>Learning transfer</i>				<i>Elaboration</i>	
<i>Independent variables</i>	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	6.11 (1.32)**	7.45 (1.32)**	7.16 (1.45)**	6.50 (1.34)**	1.80 (0.40)**	1.79 (0.40)**
GPA	0.61 (0.75)	0.28 (0.74)	0.33 (0.76)	0.57 (0.70)	0.36 (0.23)	0.37 (0.22)
Baseline performance	0.36 (0.31)	0.24 (0.31)	0.25 (0.31)	0.33 (0.28)	0.14 (0.09)	0.14 (0.09)
Experimental condition ¹	1.67 (0.80)*	—	0.52 (1.05)	1.15 (0.99)	1.47 (0.24)**	1.47 (0.24)**
Elaboration		0.94 (0.35)*	0.78 (0.47)†	0.40 (0.46)		
Error orientation				-2.19 (0.86)*		-0.18 (0.28)
Error orientation x Experimental condition				4.28 (1.30)**		0.86 (0.40)*
Model <i>R</i> ²	.15	.19	.20	.36	.51	.57
<i>F</i> (<i>df</i>)	2.72 (3,46)*	3.70 (3,46)*	3.70 (4,45)*	4.07 (6,43)	15.97 (3,46)**	11.62 (5,44)**
ΔR^2	.08*	.12*	.01	.16**	.38**	.06*

Note: Learning transfer is the dependent variable for Models 1 through 4; Elaboration is the dependent variable for Models 5 and 6. Values are unstandardized parameter estimates for regression weights (standard errors in parenthesis). ¹ Experimental condition: 0 = success-story training, 1 = failure-story training; ΔR^2 : Change in variance explained by the predictors experimental condition, elaboration, and error orientation.

** $p < .01$, * $p < .05$, † $p < .10$

we added elaboration in Models 2 and 3 and used bootstrapping analysis. In support of Hypothesis 2, bootstrapping analysis showed that the indirect effect of the experimental manipulation on learning transfer by way of elaboration was significant (indirect effect: 1.45; 95% confidence interval: 0.39–2.73), whereas there was no direct effect of the experimental condition on learning transfer. Elaboration thus mediated the differential effect of the experimental manipulation: Failure stories led to more elaboration and, as a consequence, to higher learning transfer.

To test the assumption that failure stories have a specific effect on learning transfer, we examined whether the experimental condition had an effect on the nonequivalent dependent variable non-transferred knowledge. A comparison of group means showed that there was no significant difference between experimental conditions on the amount of nontransferred knowledge participants used to solve the case study ($t[48] = 0.39, p = .70$). Moreover, the variable nontransferred knowledge was unrelated to the mediator elaboration ($r = .15, p = .31$). These results confirm that failure stories as compared to success stories had a specific effect on learning transfer related to the knowledge participants had acquired from the failure or success stories.

Hypothesis 3 posited that individual differences in error orientation moderate the effect of failure stories on elaboration and learning transfer. In

support of Hypothesis 3a, the interaction between the experimental condition and error orientation explained incremental variance in elaboration (Model 6). The simple slope of error orientation and elaboration was significantly positive in the failure-story condition ($b = .68, p = .02$) and nonsignificant in the success-story condition ($b = -0.18, p = .53$). Thus, participants with a high error orientation elaborated more in response to failure stories as compared to participants with a low error orientation, while there were no significant differences in the success-story conditions. The interaction between experimental condition and error orientation also explained significant variance in learning transfer (Model 4). As illustrated by Figure 2, the simple slope between error orientation and learning transfer was significantly positive ($b = 2.33, p = .01$) for the failure-story condition and significantly negative ($b = -2.24, p = .01$) for the success-story condition. Although these results support our argument that people with a high error orientation learn more from failure stories than people with a low error orientation, they also suggest that people with a high error orientation learn less from success stories.

We next performed moderated mediation analyses using the procedure by Hayes (2013) to directly test whether the indirect effect of failure stories on learning transfer, which was mediated by elaboration, was moderated by error orientation (Hypothesis 3b). The conditional indirect effect of the training condition was significant at $p < .05$ for high (1.54, CI:

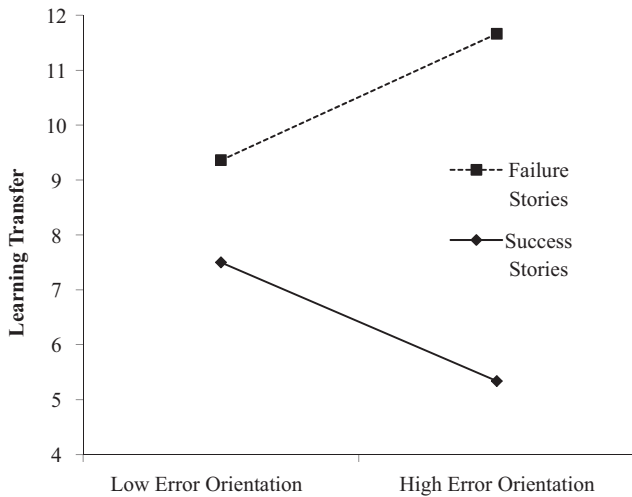


FIGURE 2
The Moderating Role of Error Orientation

.03–3.77) and low (0.76, CI: .09–1.92) levels of the moderator error orientation. The index for moderated mediation was significant when a one-sided test of significance was used (0.68, 90% CI: 0.02–2.21). The indirect effect of failure stories was stronger for people with a high error orientation. Results thus support the hypothesis that failure stories lead to enhanced learning transfer for people with a high error orientation because they show higher elaboration.

DISCUSSION

In support of the reasoning that failure stories stimulate deep information processing and result in enhanced learning transfer, we found that listening to others' managerial failures led to more elaboration as compared to listening to other people's managerial successes. Intensified elaboration, in turn, yielded higher transfer of newly acquired knowledge to a subsequent task. This effect was more pronounced for people who see failure as a valuable source of learning.

Our findings complement the literature in meaningful ways and hold important implications for management education. Although a growing body of evidence points to the important role of vicarious learning from others' failures (e.g., Joung et al., 2006; KC et al., 2013; Kim & Miner, 2007), to our knowledge this is the first study that extends this line of research to the context of management education. Moreover, our study contributes theoretically by informing the literature on why failure can result in beneficial learning outcomes. Because failure and

success stories conveyed the same learning content and differed only in the way it was presented, framing of the learning content as a failure triggered the motivation to process the stories more thoroughly. Learners responded to the negative valence of failure stories with increased elaboration, which then resulted in enhanced learning. This study thus supports the assumption that a motivational mechanism is at play and yields the learning benefits associated with being exposed to others' failures.

Results on the moderating role of error orientation showed that the motivational response to failure stories is a function of people's attitude toward failure. People with a high error orientation, who see the learning potential of failures, showed more elaboration and learning transfer when listening to failure stories. We stress that a high error orientation does not imply that failures are seen simply as positive events. If this were the case, there should be no pronounced motivational response to failure in the first place, because this response is triggered by the negative valence of failure stories. Indeed, to learn from failure stories, people need to be sensitive to the negative valence of failure (Baumann, Kaschel, & Kuhl, 2007). The critical process that differentiates people on the error orientation dimension is how they respond once a failure has been detected. Rather than showing a passive response, such as being overwhelmed by or ignoring failure, people high in error orientation display an active and adaptive response by elaborating on and drawing lessons from failure. Also of interest, we found that people with a high error orientation learned less from success stories than people with a low error orientation. Given the small sample size and that we did not expect this result, inferences should be drawn only tentatively. The finding could imply that a high error orientation is associated with less motivation to replicate successful experiences. Such a tendency would be dysfunctional insofar as people acquire less successful routines by observing others; however, there may also be benefits involved if people focus on generating their own behavioral responses rather than relying on what is proven and tested (Kirton, 1976).

Limitations of our study are that the affective and cognitive processes that link failure and success stories to learning transfer could be captured only partially, and that we examined learning transfer only within the setting of our study. With respect to cognitive processes, we measured only the overall level of elaboration participants displayed

and could not conduct a fine-grained analysis of qualitative differences in how people processed failure as compared to success stories. Future research is needed to unpack the process of elaborating on failure and success stories that underlies effective vicarious learning and to test our assumption that people integrate the content of failure stories differently into their existing knowledge. With respect to people's affective reactions to failure stories, we showed that the manipulation led to a more negative evaluation of the narrator. However, we did not directly measure participants' affective response to the negative valence of failure stories, which presumably triggered greater elaboration. Such responses typically occur fast and implicitly, and cannot adequately be assessed by self-report measures (Quirin, Kazen, & Kuhl, 2009). Regarding inferences from our study about learning transfer, we point to the uncertainty of whether the knowledge communicated by failure stories had a lasting effect on participants' memory, and whether they made use of it outside of our study's setting.

To gain a more complete picture of managerial learning from experience, an important avenue for future research is to compare vicarious learning from success and failure with learning from personal success and failure. Our theoretical approach suggests that the basic motivational mechanism is the same insofar as people display a more pronounced response to failure as compared to success. However, personal failure is more threatening for the individual and should thus elicit stronger negative emotions and can lead to defensive reactions instead of adaptive learning processes (Gross & John, 2003). Moreover, different cognitive processes are likely to follow people's initial affective reaction depending on whether failure is experienced firsthand or vicariously. When the reason for failure is ambiguous, people will show different attribution patterns in explaining why a failure occurred (Weiner, 1985): Personal failure will more likely be attributed to the context, whereas failure of others will more likely be attributed to the other person. This bias in attribution patterns should render others' failure as compared to personal failure particularly effective for learning, as failure is then viewed as the consequence of an actor's behavior, which could have been evaded by engaging in a different set of behaviors. In their study on surgeons, KC et al. (2013) indeed showed that people effectively learned from others' failures but often failed to learn from their own.

Using Failure Stories to Enhance Managerial Learning

Our theoretical rationale and the results of our study suggest that using failure stories more systematically can enhance managerial learning in formal as well as informal learning settings. We contrasted learning from failure stories with learning from success stories to highlight the specific advantage of the former; however, this should not be misunderstood as a general recommendation to replace success stories with failure stories. Although not directly examined here, we expect that both failure stories and success stories serve important functions for learning and that educators need to make informed decisions on when to use and how to integrate both kinds of stories.

Success stories serve as inspirational examples and can teach learners effective behaviors (Bandura, 1977). Success stories show that managerial success is attainable and can build learners' confidence in their abilities, in particular when they see similarities between themselves and a role model. Thereby approach motivation to strive toward becoming equally successful can be stimulated. Success stories may also be particularly effective for teaching concrete behavioral routines. For instance, Gino, Argote, Miron-Spektor, and Todorova (2010) found that observing people who are successful at an origami exercise had a more positive impact on a learner's performance as compared to observing people who were unsuccessful. For the acquisition of behavioral routines such as meticulous hand movements, paying close attention to and imitating a role model may be more important than cognitive elaboration. Managerial tasks are, however, typically complex, and the set of behaviors that is effective depends on the specific situation, so the mere replication of a behavior that has been successful elsewhere is not sufficient.

Managerial learning requires more than imitating behavioral routines. Failure stories may be particularly effective in learning contexts where learners need to intensively elaborate a topic to develop differentiated and flexible knowledge structures that allow them to respond to unique managerial challenges in a context-sensitive manner. Examples are strategic choices managers have to make, such as whether they focus the dominant activity of an organization on refining existing organizational products and processes or on the exploration of new opportunities (Bledow, Frese, Anderson, Erez, & Farr, 2009; Gupta, Smith, &

Shalley, 2006). For many interpersonal situations, such as negotiations with customers or dealing with difficult employees or coworkers, routine one-best-way solutions are equally insufficient. Failure stories that stimulate elaboration may help learners to develop the knowledge and heuristics to deal with such managerial challenges. In contrast to the stories we used in the experiment, in which we explicitly mentioned the cause of success and failure, real failure stories are often ambiguous regarding their cause. Generating hypotheses about the reason for failure is then a critical part of the learning process. Indeed, a shortcoming of many success stories is that they often readily provide a simplified interpretation of why success was achieved and do not encourage learners to challenge this interpretation, even though the true reasons for success are often unclear. For instance, the bestselling book *Good to Great* (Collins, 2001) we mentioned in the introduction has been criticized on the grounds that the evidence it provides for the reasons why companies have moved from "good" to "great" is weak (Levitt, 2008).

Failure stories may also be particularly effective when learners lack the motivation to elaborate on a subject because they underestimate its difficulty. Failure stories could then serve as wake-up calls and draw learners' attention to the importance of the subject. Teachers of organizational behavior, for instance, frequently face the problem that students view topics as easy and intuitive and thus, overestimate their abilities in managing others and themselves. A good example of a failure story that can be used to address this problem is the popular Harvard Business School case on Erik Peterson. The case tells the story of a new, conscientious, and hard-working MBA, who takes on his first job in a start-up setting and, after a series of events and problematic decisions, ends up getting fired. Teachers using this failure story have observed that it helps to raise students' awareness of the complexities involved in leadership and management and it stimulates engaged class discussions on what went wrong and how the protagonist could have more effectively handled the challenges he faced.

Embedding failures in case studies or constructing entire case studies about failures allows educators to standardize learning material and at the same time stimulate self-directed learning. By presenting a group of learners with the same managerial failures, and by letting them explore and evaluate the reason of failure individually or in

groups, the inductive learning benefits that characterize self-directed learning approaches may be combined with the standardization benefits that characterize guided learning methods. Depending on the learning objective, case writers and instructors can focus on standardization and communicate evidence-based principles of management with failure stories that establish an explicit link between actions and their consequences or can emphasize inductive learning. To stimulate inductive learning, failure stories can communicate failure and its negative consequences but refrain from stipulating only one interpretation of the causes of failure and instead present context-rich information that lends itself to different interpretations. In classroom settings, students can then engage in collective sense making by developing and controversially discussing alternative views on the causes of failure. Our study suggests that the use of failure stories in classroom settings will be of benefit if instructors improve students' attitudes toward failure and instigate an error orientation by explicitly mentioning and letting students directly experience the value of learning from others' failure.

The content of failure stories that are gathered by case writers and educators needs to be evaluated carefully.¹ First, failure stories should be drawn from the most common and recurring scenarios that trap managers and should focus on actions that consistently have detrimental consequences (e.g., giving negative feedback in public, rewarding poor performers). A fruitful avenue for future research is to systematically identify such scenarios and actions. Second, failure stories need to be authentic and well-targeted toward different audiences, such as young graduates or senior executives, to be relatable. Third, the knowledge that is communicated by failure stories should be backed by systematic evidence. Due to their effectiveness for learning, failure stories may also stimulate effective learning of the wrong content. When failure stories communicate a manager's subjective interpretation of a chain of events, rather than generalizable and evidence-based principles of management, learners may derive wrong inferences about effective management.

A challenge for the use of failure stories for managerial learning may be their availability. There can be costs involved for the protagonist when communicating failure stories, and the learning benefit

¹ We thank an anonymous reviewer for pointing this out.

resides with the listener. Managers who have experienced failure firsthand may hesitate to share failure stories to avoid being viewed as incompetent, which is likely one of the reasons for the undersampling of failure in management education. Case writers may thus find it difficult to gain access to failure stories, and employees miss out on valuable learning opportunities if failure stories are withheld in their organization. Although our study has shown that the narrators of failure stories were indeed evaluated more critically, this process is arguably more complex in real-world settings and may even be reversed. Protagonists who have a history of successes and are generally viewed as competent may even be viewed in a more positive and humane light if they also share their failure stories.

At a broader level, our results suggest that organizations may foster a culture in which employees at all organizational levels are willing to share their erroneous actions that have caused failures (van Dyck, Frese, Baer, & Sonnentag, 2005). The top-management team of an organization can set a powerful example by openly discussing past failures. Organizations can also institutionalize communication about failures by providing a platform for employees to share failed experiences. For instance, *After-Event Reviews* are meetings of employees and their managers that are typically held after a project or task has been completed. They provide an opportunity to reflect upon and discuss erroneous and successful courses of actions. After-Event Reviews can be documented and made publicly available to other members of an organization. An encouraging example of the use of failure stories for entrepreneurial learning is the concept of "F***UpNights," which has its roots in Mexico and has quickly spread to many countries—it is thus, ironically, a success story (http://f***upnights.com). A group of friends had spontaneously started to share their entrepreneurial experiences, in particular their failures, and realized how fruitful this exchange was. Today, these events are typical evening events that take place in informal locations such as bars and give people the opportunity to go on a stage and share and discuss with the audience their failed attempts to build businesses. Another promising example is the award-winning Fail Forward initiative (<http://failforward.org>), aimed at assisting organizations in embracing the potential of sharing failure stories within and across organizations.

CONCLUSION

The full opening quote of this article reads "Only fools learn from their own mistakes. The wise man learns from the mistakes of others" (Otto von Bismarck). We did not examine and would question the validity of the first part of the quote; however, in line with a growing body of research, we found support for the second part. Drawing lessons from other people's failures is a particularly effective but underused form of learning. Hence, the best practice for learning from others' experience in educational and organizational settings is to focus not only on others' best, but also on their worst practices—and to share with others not only one's success but also one's failure stories.

REFERENCES

- Abele, A. 1985. Thinking about thinking: Causal, evaluative and finalistic cognitions about social situations. *European Journal of Social Psychology*, 15(3): 315–332.
- Bandura, A. 1977. *Social learning theory*. Englewood-Cliffs, NJ: Prentice Hall.
- Baum, J. A. C., & Dahlin, K. B. 2007. Aspiration performance and railroads' patterns of learning from train wrecks and crashes. *Organization Science*, 18(3): 368–385.
- Baumann, N., Kaschel, R., & Kuhl, J. 2007. Affect sensitivity and affect regulation in dealing with positive and negative affect. *Journal of Research in Personality*, 41(1): 239–248.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. 2001. Bad is stronger than good. *Review of General Psychology*, 5(4): 323–370.
- Bledow, R., Frese, M., Anderson, N., Erez, M., & Farr, J. 2009. A dialectic perspective on innovation: Conflicting demands, multiple pathways, and ambidexterity. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 2: 305–337.
- Bledow, R., Rosing, K., & Frese, M. 2013. A dynamic perspective on affect and creativity. *Academy of Management Journal*, 56(2): 432–450.
- Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. 2011. The affective shift model of work engagement. *The Journal of Applied Psychology*, 96: 1246–1257.
- Burns, L. R., & Wholey, D. R. 1993. Adoption and abandonment of matrix management programs: Effects of organizational characteristics and interorganizational networks. *Academy of Management Journal*, 36: 106–138.
- Christensen, C. M., & Carlile, P. R. 2009. Course research: Using the case method to build and teach management theory. *Academy of Management Learning & Education*, 8(2): 240–251.
- Collins, J. 2001. *Good to great*. New York: HarperCollins.
- Denrell, J. 2003. Vicarious learning, undersampling of failure, and the myths of management. *Organization Science*, 14(3): 227–243.

- DeRue, D. S., Nahrgang, J. D., Hollenbeck, J. R., & Workman, K. 2012. A quasi-experimental study of after-event reviews and leadership development. *The Journal of Applied Psychology*, 97(5): 997–1015.
- Eddy, E. R., Tannenbaum, S. I., & Mathieu, J. E. 2013. Helping teams to help themselves: Comparing two team-led debriefing methods. *Personnel Psychology*, 66(4): 975–1008.
- Ellis, S., & Davidi, I. 2005. After-event reviews: Drawing lessons from successful and failed experience. *The Journal of Applied Psychology*, 90(5): 857–871.
- Erez, M., Lisak, A., Harush, R., Glikson, E., Nouri, R., & Shokef, E. 2013. Going global: Developing management students' cultural intelligence and global identity in culturally diverse virtual teams. *Academy of Management Learning & Education*, 12(3): 16–41.
- Frese, M. 1995. Error management in training: Conceptual and empirical results. In C. Zucchermaglio, S. Bagnara, & S. U. Stucky (Eds.), *Organizational learning and technological change*: 112–124. Berlin: Springer.
- Gino, F., Argote, L., Miron-Spektor, E., & Todorova, G. 2010. First, get your feet wet: The effects of learning from direct and indirect experience on team creativity. *Organizational Behavior and Human Decision Processes*, 111(2): 102–115.
- Goodman, J. S., & O'Brien, J. 2012. Teaching and learning using evidence-based principles. In D. M. Rousseau (Ed.), *The Oxford handbook of evidence-based management*: 309–337. New York: Oxford University Press.
- Gross, J. J., & John, O. P. 2003. Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2): 348–362.
- Grossman, R., Salas, E., Pavlas, D., & Rosen, M. A. 2013. Using instructional features to enhance demonstration-based training in management education. *Academy of Management Learning & Education*, 12(2): 219–243.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. 2006. The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4): 693–706.
- Hayes, A. F. 2013. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hoover, J. D., Giambatista, R. C., & Belkin, L. Y. 2012. Eyes on, hands on: Vicarious observational learning as an enhancement of direct experience. *Academy of Management Learning & Education*, 11(4): 591–608.
- Ingram, P., & Baum, J. A. C. 1997. Opportunity and constraint: Organizations' learning from the operating and competitive experience of industries. *Strategic Management Journal*, 18(s 1): 75–98.
- Joung, W., Hesketh, B., & Neal, A. 2006. Using "war stories" to train for adaptive performance: Is it better to learn from error or success? *Applied Psychology: An International Review*, 55(2): 282–302.
- KC, D., Staats, B. R., & Gino, F. 2013. Learning from my success and from others' failure: Evidence from minimally invasive cardiac surgery. *Management Science*, 59(11): 2435–2449.
- Keith, N., & Frese, M. 2005. Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *The Journal of Applied Psychology*, 90(4): 677–691.
- Keith, N., & Frese, M. 2008. Effectiveness of error management training: A meta-analysis. *The Journal of Applied Psychology*, 93(1): 59–69.
- Kim, J.-Y., & Miner, A. S. 2007. Vicarious learning from the failures and near-failures of others: Evidence from the U.S. commercial banking industry. *Academy of Management Journal*, 50(3): 687–714.
- Kirton, M. 1976. Adaptors and innovators: A description and measure. *The Journal of Applied Psychology*, 61(5): 622–629.
- Klimoski, R., & Amos, B. 2012. Practicing evidence-based education in leadership development. *Academy of Management Learning & Education*, 11(4): 685–702.
- Kozlowski, S. W. J., Toney, R. J., Mullins, M. E., Weissbein, D. A., Brown, K. G., & Bell, B. S. 2001. Developing adaptability: A theory for the design of integrated-embedded training systems. In E. Salas (Ed.), *Advances in human performance and cognitive engineering research*, Vol. 1: pp. 59–123. Amsterdam: JAI/Elsevier Science.
- Kuhl, J. 2000. A functional-design approach to motivation and self-regulation: The dynamics of personality systems interactions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation*: 111–169. San Diego, CA: Academic Press.
- Levitt, S. D. 2008. From good to great... to below average. <http://freakonomics.com/2008/07/28/from-good-to-great-to-below-average/> (Accessed on 02/23/2015).
- Lockwood, P., Jordan, C. H., & Kunda, Z. 2002. Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, 83(4): 854–864.
- Madsen, P. M., & Desai, V. 2010. Failing to learn? The effects of failure and success on organizational learning in the global orbital launch vehicle industry. *Academy of Management Journal*, 53(3): 451–476.
- Manz, C. C., & Sims, H. P. 1981. Vicarious learning: The influence of modeling on organizational behavior. *Academy of Management Review*, 6: 105–113.
- Mauboussin, M. J. 2012. The true measures of success. *Harvard Business Review*, 90(10): 46–56.
- Ng, K.-Y., Van Dyne, L., & Ang, S. 2009. From experience to experiential learning: Cultural intelligence as a learning capability for global leader development. *Academy of Management Learning & Education*, 8(4): 511–526.
- Petty, R. E., & Cacioppo, J. T. 1986. The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology*: 123–205. New York: Academic Press.
- Petty, R. E., & Wegener, D. T. 1999. The elaboration likelihood model: Current status and controversies. In S. Chaiken, & Y. Trope (Eds.), *Dual process theories in social psychology*: 41–72. New York: Guilford Press.
- Quirin, M., Kazen, M., & Kuhl, J. 2009. When nonsense sounds happy or helpless: The Implicit Positive and Negative Affect Test (IPANAT). *Journal of Personality and Social Psychology*, 97(3): 500–516.
- Robinson-Riegler, G. L., & Winton, W. M. 1996. The role of conscious recollection in recognition of affective material:

- Evidence for positive-negative asymmetry. *The Journal of General Psychology*, 123(2): 93–104.
- Rybowiak, V., Garst, H., Frese, M., & Batinic, B. 1999. Error Orientation Questionnaire (EOQ): Reliability, validity, and different language equivalence. *Journal of Organizational Behavior*, 20(4): 527–547.
- Schwarz, N., & Bless, H. 1991. Happy and mindless, but sad and smart? The impact of affective states on analytic reasoning. In J. P. Forgas (Ed.), *Emotion and social judgments*: 55–71. Elmsford, NY: Pergamon Press.
- Seery, M. D., Leo, R. J., Lupien, S. P., Kondrak, C. L., & Almonte, J. L. 2013. An upside to adversity?: Moderate cumulative lifetime adversity is associated with resilient responses in the face of controlled stressors. *Psychological Science*, 24(7): 1181–1189.
- Sitkin, S. B. 1992. Learning through failure: The strategy of small losses. *Research in Organizational Behavior*, 14: 231–266.
- Snow, R. E. 1989. Aptitude-treatment interaction as a framework for research on individual differences in learning. In P. L. Ackerman, R. J. Sternberg, & R. Glaser (Eds.), *Learning and individual differences: Advances in theory and research*: 13–58. New York: Freeman.
- van Dyck, C., Frese, M., Baer, M., & Sonnentag, S. 2005. Organizational error management culture and its impact on performance: A two-study replication. *The Journal of Applied Psychology*, 90(6): 1228–1240.
- Weiner, B. 1985. An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4): 548–573.

Ronald Bledow completed his PhD in psychology at the University of Giessen (Germany). He is currently an assistant professor of organizational behavior and human resources management at Singapore Management University. Ronald's research interests include motivation and self-regulation as well as creativity and innovation in organizations.

Bernd Carette holds a PhD in psychology from Ghent University (Belgium). In his doctoral research, Bernd investigated underlying processes and boundary conditions of learning from experience in organizations. Bernd is currently a senior advisor management consulting at KPMG.

Jana Kühnel obtained her PhD in psychology from the University of Konstanz (Germany). Jana is currently a research fellow at the Department of Work and Organizational Psychology, Ulm University. Her research focuses on work stress and recovery, work engagement, and the role of sleep for effective functioning at work.

Diana Bister holds a degree in psychology from the University of Giessen (Germany). After starting her career as a management consultant at Kienbaum, she now coaches teams and executives to scale agility throughout their companies. Her principle "fail fast, learn quick" emerged from her thesis that investigated learning from failure.