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Rising from Failure and Learning from Success: The Role of Past Experience in Radical Initiative Taking

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We investigate how the successes and failures of people who initiate radical ideas influence (a) the inclination to take new personal initiatives and (b) the outcome of those initiatives. Using the data of 1,792 radical ideas suggested by 908 employees in a multinational firm’s idea and innovation program, we unexpectedly find that failures, rather than successes, of initiators increase the likelihood of repeat initiative taking. We confirm our hypothesis that involving initiators with prior success in initiative taking has a positive effect on the outcome of a subsequent radical initiative. Our findings illustrate how learning unfolds in the context of radical initiatives and provide insights into how managers can support continuous and superior radical initiative taking.

Keywords: initiative taking; radical ideas; learning; innovation; idea management

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Introduction

Managers increasingly rely on their employees to take the initiative, go beyond their assigned tasks, take charge, and initiate new ideas in addition to their day-to-day jobs (for reviews, see Crant 2000, Frese and Fay 2001, Grant and Ashford 2008, Grant and Parker 2009). People who take initiative, for instance, submit concepts for potential new markets, propose new product and service ideas, and/or initiate changes in work processes, making them safer and/or more efficient (Frese et al. 1996, 1999; Morrison and Phelps 1999; Parker et al. 2006; Unsworth 2001). Especially radical or disruptive ideas or initiatives can be very rewarding for firms and can be a source for strategic renewal (Burgelman 1983). Radical initiatives are exploratory in nature; they differ from earlier initiatives and thus require a new set of knowledge and a departure from already existing competencies (Levinthal and March 1993). Although they can be considered fairly rare events, radical initiatives can lead to fundamental changes in an organization’s technological trajectory and customer base, thereby allowing firms to transform their competitive position.

Managers who want to capitalize on radical initiative taking face two issues. First, they have to decline many initiatives because only a few can actually be implemented. Because initiative taking is discretionary (initiatives are generated in employees’ spare time, in addition to their day-to-day job), it is unclear how the rejection of initiatives affects future initiative taking by the same employees. For instance, employees could easily decide

to stop taking initiative if their ideas are rejected too often. However, it is important that employees do not take initiative sporadically but on a continuous basis. Only when employees constantly think about new opportunities (Skilton and Dooley 2010) will their firms be provided with a full pipeline of initiatives and therefore with the capabilities and opportunities to successfully compete (Burgelman 1983). Second, managers face the question of how the quality of initiatives can be improved over time. A high number of low-quality initiatives is costly to administer and to review (Kijkuit and Van den Ende 2010). The question therefore is, what do employees learn from prior initiative taking experiences so that they repeatedly take initiative and generate multiple high-quality ideas over time? To answer this question, we investigate how prior initiating experiences of both focal idea initiators and contributors to an idea can increase initiative outcome performance. In doing so, we recognize that people who contribute to an idea but are not the main initiator or champion of that idea can still play an important role because they bring with them important prior experiences (Madsen and Desai 2010, Schwab and Miner 2008). Initiators can be considered the owner and often the “brain” behind the initiative, whereas other contributors help improve and develop the initiative (see Howell and Higgins 1990 for a similar differentiation between champions and non-champions).

Whereas prior studies shed light on the antecedents or outcomes of initiative taking, the main contribution of this study is to examine sustained, radical initiative

taking. As such, we study how people who have already proposed an initiative can leverage their experience to create multiple high-quality initiatives. We take a learning perspective that concentrates on the consequences of prior performance outcomes. These outcomes are the foundation of individual learning, which may trigger an adaptation or shift in the behavior of organizational members (Argote and Miron-Spektor 2011, Edmondson et al. 2007, Levitt and March 1988). Instead of measuring learning per se, we take the number and type of prior performance outcomes as an indication for learning input. We consider repeat initiative taking and subsequent initiative success as two important, observable outcomes of the learning process. This process is underpinned by two learning mechanisms. First, we draw on the mechanism of conditioning that shows that individuals repeat behavior that led to success and discontinue actions that resulted in negative outcomes (Staddon and Cerutti 2003, Thorndike 1927). Second, we draw on learning curve research, which shows that individual results improve with more experience (Levitt and March 1988, Wright 1936). This study further contributes to these literatures as one of the first to directly address these learning behaviors for nonrequired activities such as initiative taking (Frese et al. 1999, Parker et al. 2010, Unsworth 2001).

The setting of this study is the radical idea-suggestion system of a multinational firm with archived data spanning 1,792 ideas suggested over the course of 12 years by 908 employees. We consider the rejection of an initiative by the management as a failure and the adoption or acceptance of an initiative as a success. As we will explain later, the outcome and quality of an initiative is mainly dependent on the idea inventor as well as potential contributors. Therefore, initiative success or failure, even if categorized as such by individuals other than the inventor and potential idea contributors, is a useful and widely accepted indicator to make inferences about the quality of an initiative and the inventor (Cattani and Ferriani 2008, Mumford and Gustafson 1988). Success does not mean that the “perfect” solution to a problem is found but that idea initiators can carry on implementing their idea, which may ultimately result in increased organizational performance (McGrath 2001).

Contrary to our expectations, we find that it is initiative failure that is positively associated with repeat initiative taking. Experiences of success are related to subsequent initiative performance. Given that initiative taking is becoming an increasingly essential element of today’s work (Crant 2000, Frese and Fay 2001, Grant and Ashford 2008, Grant and Parker 2009), these findings reveal learning patterns that shape sustained and high-quality initiative taking. By illuminating the learning behaviors that follow a prior initiative taking effort, we advance literature, which, until now, has focused

more on the factors that can generally affect but not sustain initiative taking. Our findings highlight important differences between proactive behaviors and required, job-related tasks of employees. As such, our study offers insights into how employees make potentially different inferences based on the outcome of a personal initiative versus a required task. We also advance recent research aimed at disentangling total experience into components of success and failure (see Madsen and Desai 2010). Hence, we focus on what can be learned from the different outcomes of the behavior itself and thereby provide important recommendations for firms wanting to stimulate *continued* and *improved* initiative taking behavior.

Theoretical Background

Personal Initiative

Grant and Parker (2009) have highlighted some emerging shifts in work design theories driven by rapid technological advances, increased competitive pressure, and more complex interdisciplinary jobs. Companies are increasingly relying on employees who initiate change and display entrepreneurial behavior proactively (Burgelman 1983). These employees show personal initiative, defined as “a behavior syndrome resulting in an individual’s taking an active and self-starting approach to work and going beyond what is formally required in a given job” (Frese et al. 1996, p. 38). Personal initiative theory focuses on internal personal processes. It is an active concept entailing aspects of self-starting, proactive, and persistent behavior (Frese and Fay 2001). The self-starting component emphasizes the voluntary nature of this behavior, proactivity implies that people react in advance to anticipated future problems or opportunities, and persistency entails that people do not give up so easily so as to realize change (Frese and Fay 2001). A salient example of a product resulting from initiative taking behavior by employees is ideas—for instance, ideas to improve existing processes and products, to prevent anticipated problems, or to take advantage of new opportunities.

Personal initiative is closely related to constructs such as taking charge (e.g., Morrison and Phelps 1999), proactivity (e.g., Grant and Ashford 2008, Grant and Parker 2009, Parker and Collins 2010, Unsworth 2001), organizational citizenship behavior (e.g., Podsakoff et al. 2000), as well as internal corporate entrepreneurship (e.g., Jones and Butler 1992). Taking initiative differs from organizational citizenship behavior because it focuses more on creativity and is grounded in a proactive attitude (Frese et al. 1999). In contrast to certain types of internal corporate entrepreneurship, taking initiative can result in, but is not limited to, the study of internal venture creations.

In this study, our emphasis is not on *why* people start generating initiatives but rather on *how* prior initiative

outcomes relate to subsequent initiative taking and subsequent initiative success. Our work is thus guided by a focus on the outcome or product of initiative taking (Cattani and Ferriani 2008). One assumption we make in this respect is that those people who did generate at least one initiative (our study population) have a higher inclination to generally take initiative, as well as a higher level of self-starting behavior, proactivity, and persistency than those who never took initiative.

The type of personal initiatives that we are investigating in this study can best be classified as radical. Radical initiatives are an organization's "raw material...for strategic renewal" (Burgelman 1983, p. 1350). As such, each of the radical initiatives that we investigate should be different from an earlier initiative, and in principle, the activity should be considered as a fairly challenging task for which a great deal of energy and commitment of people is needed (Van de Ven 1986). Although successful radical initiatives can have a vast impact on an organization, they can be considered as fairly rare events compared with more incremental improvement ideas. This is also because disruptive initiatives challenge the status quo of an organization and therefore can cause much organizational resistance (Dougherty and Hardy 1996). Because of the very nature of radical initiatives, it is difficult to estimate the value and benefits such an initiative can bring to the organization ahead of time (Baer 2012).

Learning from Initiatives

It is important to study what people learn from outcomes of personal initiatives for two reasons. First, employees could decide to stop taking initiative because it is a discretionary activity; this in turn could damage the innovative output of a company (Frese et al. 1996, 1999; Morrison and Phelps 1999; Parker et al. 2006). Second, companies should be interested in high-quality initiatives so that they invest their money and resources as efficiently as possible (even on nonrequired activities). In this regard, it seems logical that learning from prior experiences would be an important strategy.

Conditioning and outcome improvement are two mechanisms that could inform our understanding of how learning unfolds between a past and a subsequent action.¹ Theories of conditioning are based on the law of effect (Thorndike 1927, 1933) and imply that individuals learn based on the consequences of behavior (Staddon and Cerutti 2003). As Greenberg and Baron (2002, p. 56) explain, "Behaviors with positive consequences are acquired; behaviors with negative consequences tend to be eliminated." Conditioning can be considered as a form of performance-outcome learning (e.g., Schwab and Miner 2008, Staddon and Cerutti 2003) and is an important mechanism to consider because favorable initial outcomes are often seen as good predictors of

repeated behavior (see, e.g., Grant 2012). Equally important to understanding learning is the classic outcome improvement or learning curve notion, which implies that desired results improve with experience gained (Wright 1936). This theory rests on the old adage that "practice makes perfect" and relates to a form of learning by doing (Levitt and March 1988). For instance, as people perform tasks, they generate or seek feedback (Ellis and Davidi 2005, Ellis et al. 2006), and this feedback then facilitates or is a critical element of active learning (e.g., Katz-Navon et al. 2009). Similar to other studies (e.g., Edmondson et al. 2007, Gino et al. 2010, Madsen and Desai 2010), we draw on the mechanism of outcome improvement to establish a link between an experience and performance. Hence, for both conditioning (to do something again) and outcome improvement (to do something better), experience serves as one key ingredient from which people make inferences.

Experience can, of course, have different dimensions and sources (Argote and Miron-Spektor 2011, Argote et al. 2003). Given the context of this study, we consider the process, content, and motivational dimensions particularly important. Process dimensions of experience concern knowledge about the development stages, the evaluation criteria, and managerial expectations in these different phases; content dimensions of experience relate to knowledge about the characteristics of a focal initiative and how it matches with the company requirements, current needs, or problems; and motivational dimensions of experience indicate why certain performance outcomes elicit more intense knowledge seeking and acquisition than others. In our hypotheses' development, we will draw and elaborate on these different kinds of dimensions to predict why certain idea initiators take the initiative again and why they improve over time.

Hypotheses

Learning to Do It Again

First, we hypothesize about the effect of prior failure or success experience on repeat initiative taking. There is mixed evidence about this relationship. Initiatives are often generated by people who are intrinsically motivated (Frese et al. 1999, Morrison and Phelps 1999) or goal directed (Carver and Scheier 1998, Miller et al. 1960). Intrinsically motivated people seem to choose more difficult tasks in the absence of external rewards (Shapira 1976) and are generally more motivated to learn (Gong et al. 2012, Parker and Collins 2010). People that experience failure might seek increased risk (Sitkin 1992) because prior failure can trigger a feeling of being positively challenged (Amabile et al. 2005). Feeling challenged, in turn, might stimulate individuals to further experiment and come up with new proposals despite prior failures (Hamel and Getz 2004, Sitkin 1992). Especially in situations where a high failure rate

can be expected, the effect of being positively challenged may work particularly well. Hence, it could be the motivational component of challenge, which is induced through experiencing failure that stimulates repeat action (Mikulincer 1989).

Moreover, error management literature (e.g., Frese 1995, Keith and Frese 2008, van Dyck et al. 2005) has shown that making errors can instigate increased exploratory behavior. Specifically, when people are highly involved in an initiative, failure might also lead to increased persistence (Carver et al. 1979, Locke and Latham 1990) because people try to understand the inherent causes of the failure or error or because the task is very relevant to the self-definition of a person (Brunstein and Gollwitzer 1996). On a related note, initiatives are also sometimes generated by those who follow more goal-directed action (Carver and Scheier 1998, Miller et al. 1960). This means that they perform an action until the discrepancy between an input function and a reference value is resolved—in other words, until a goal is achieved or abandoned (Carver and Scheier 1998, Miller et al. 1960). This could result in more idea initiatives being submitted after a prior failure.

However, learning theory also suggests that successful outcomes of prior activities result in increased repeated efforts (Thorndike 1927, 1933). Behavior of people who are successful is reinforced by positive feedback and by direct or future rewards associated with the success. The positive feedback that initiators get might motivate them to take initiative again because they learn that their company values successful initiatives. Positive feedback about an initiative might also be understood as support from management (Zhou and George 2001) and therefore an encouragement to take initiative again. Moreover, performing well through personal initiative gives the employee a feeling of recognition because there are generally few successful initiatives compared with the number of failed proposals screened through institutionalized processes (Fairbank and Williams 2001, Frese et al. 1999). Thus, experiences of success can also unlock a more extrinsic motivational dimension as they indicate that the idea inventor is performing very well.

In addition to this motivational dimension, process experience might be another key ingredient from which people make inferences. Successful initiative originators have gone through all the possible development stages and have gained more knowledge about the evaluation criteria and expectations in these different phases. Similarly, actions that are interpreted as positive provide a base of familiarity and boost confidence in one's abilities (Levinthal and March 1993) that trigger repeat initiative taking. Initiators might expect that the stocks of knowledge they accumulate are best used again (Schwab and Miner 2008). People therefore learn to make more use of prior knowledge gained through initiative.

Although there are reasons to believe that both initiative failure and success might increase the repeated generation of initiatives, we argue that employee initiative taking should still be reinforced *more* by prior success experience. This has to do with certain features of failure. For instance, failure can foster a feeling of helplessness (Mikulincer 1989). It is also more difficult for initiators to maintain a high level of self-esteem following failure. Moreover, perceived self-efficacy can decrease with failure and with it the feeling of being able to perform the task successfully in the future (Shea and Howell 2000). Negative feedback teaches initiators not to pursue the activity any longer (Shepherd 2003) because future failures can be expected (Brunstein and Gollwitzer 1996). Also, aspects of initiative behavior itself might play a role. For instance, since initiative taking is discretionary by definition, it is easier for employees to decide not to take initiative any more. Finally, initiators might fear appearing incompetent, an embarrassment they would generally want to avoid (Milliken et al. 2003). To conclude, we hypothesize that experiences of success more than failure stimulate the repeated generation of initiatives.

HYPOTHESIS 1. An initiator's prior experience of success increases the likelihood of repeat initiative taking more than prior experience of failure does.

Learning to Improve

In our next research question, we address how prior failures and successes of initiators and contributors affect the quality of initiatives. Again, there is mixed evidence about the consequences of success and failure for outcome improvement learning (Brunstein and Gollwitzer 1996). On the one hand, learning literature reports that failure offers more opportunities for learning than does success (McGrath 1999, Shepherd and Cardon 2009, Sitkin 1992). Failures can draw attention to and signify particular problems with ideas (Hammond and Farr 2011). This is related to the content dimension of experience. Employees compare original plans with the outcome, try to understand the performance gap, learn why something failed, and plan actions accordingly (McGrath 1999, Miller et al. 1960). They may look for solutions to problems, for instance, by searching and scanning new information (Madsen and Desai 2010, Sitkin 1992). In this respect, prior failure may also give employees useful performance feedback (Frese and Fay 2001) and an indication of how things should be done more successfully in a future effort (Madsen and Desai 2010). Error management literature has pointed out similar possible dynamics (e.g., Hammond and Farr 2011, van Dyck et al. 2005). In an “error-friendly” environment, errors inspire people to learn more about the situation that caused the error in the first place, and, by instigating this learning process, the same mistakes might not be

made again, better approaches might be found, or completely new applications might serendipitously be identified, ultimately increasing performance.

On the other hand, a new stream of literature also focuses on the value of learning from successes (Ellis and Davidi 2005, Ellis et al. 2006). As successful initiatives are usually rare events (many are screened out before an implementation decision is made), successes generally stand out more than failures. Lampel et al. (2009) show that rare events stimulate learning when the event has a high impact on the organization and is perceived as very relevant by managers and decision makers. These events not only attract more attention from managers and employees but are also perceived as good and “rich” examples that stimulate reflection and allow lessons to be drawn. Since successful radical initiatives are relatively rare events, they might be considered of greater value in terms of learning. Indeed, things can always be improved in a next effort, and successful experiences additionally give people the confidence and enthusiasm to explore those remaining deficiencies. Moreover, people with experiences of success could probably count on increased managerial backing that could allow more freedom to explore new and even better ways of performing tasks. In that sense, prior initiative success unlocks the motivational dimension of experience (Frese et al. 1999, Morrison and Phelps 1999).

Experience of success also provides employees with a frame of reference and proven routines (Gersick and Hackman 1990). Successful initiators witness the development of their idea from its inception to an implementation decision and therefore can see the bigger picture behind a new initiative; they gain on the dimension of process experience. Different elements of the initiative-taking process can be contrasted with one another, allowing employees to get a feeling for strategies that lead to success (Kim et al. 2009). Moreover, for initiatives to succeed, a match between the initiative and company requirements must be created. This is a process of sensemaking in which both the initiative and the company requirements can be adapted. The initiator is considered to be the focal point for all enquiries and responsible for articulating the benefits of an idea (Howell and Higgins 1990). In doing so, earlier initiators gained an understanding of how best to align company needs with individual capabilities. Also, they learned about the strategic values of a firm and how a new initiative could cater to these values. The latter point thus concerns the content dimensions of experience.

Although there are reasons to believe that both initiative failure and success might increase subsequent initiative success, we argue that the effect of prior experiences of success should be *higher* than prior experiences of failure. Although a failed initiative might not have as many negative repercussions, it also creates less pressure

to learn. This holds particularly in a context where initiatives are suggested voluntarily and where every new effort should divert from a prior one. In this environment, idea inventors are not dependent on the outcome of their prior initiatives. This means that for initiators who failed, it makes little sense to find out what was wrong with an earlier initiative in terms of its content so as to alter it in some way and resubmit an adapted version of the initiative again. Given that every new initiative must explore new grounds and novel problems, knowledge that initiators can gain from prior failures is restricted to why earlier initiatives were not able to solve a particular problem or why they were not the best fit for the company. These experiences might be useful when initiating and developing ideas becomes part of a person’s job-related task or when an initiative can be adapted in some way so that it might eventually solve a certain problem within the organization. However, they might be less useful when considering the quality of a subsequent but diverting new initiative. Furthermore, failed initiators cannot gain experience related to all phases of developing an initiative. This process knowledge, however, might be more important for the success of a subsequent initiative than the ability to pinpoint deficiencies in a particular phase of initiative development.

To conclude, we hypothesize that success more than failure increases subsequent initiative success. We test this line of thought looking at (a) the focal initiator and his or her prior idea initiating experiences and (b) the focal idea contributors and their prior idea initiating experiences. Hence, we argue that, by and large, the lessons from a prior idea initiating effort apply equally to focal idea initiators and focal contributors who have been idea initiators themselves in the past. However, focal contributors with a history of successful initiatives might, in addition, be important for the success of a focal initiative because they serve as experienced “mentors” to the focal initiator. Research on mentorship (for reviews, see Chandler et al. 2011, Haggard et al. 2011) has shown that relationships between a mentor and a mentee are effective channels for stimulating learning and redeployment of knowledge (McEvily et al. 2012). Much also depends on the motivation and ability of contributors to share their knowledge (Adler and Kwon 2002). But through a process of vicarious learning, the knowledge as well as the experiences of the earlier idea initiators might be leveraged for the focal initiative. First, contributors can assist the focal initiator in the initiative development process—for instance, by transferring the lessons learned from their prior experiences. As contributors to someone else’s initiative, they are less attached to it and therefore might also voice more critical comments that will eventually profit the initiative and improve its chances of success. Moreover, as contributors who have succeeded with initiatives many

times in the past, they can be considered experts in a certain field. Their specialized knowledge and expertise might be very useful in the initiative development process, also because it potentially differs from the knowledge and expertise of the focal idea initiator.

HYPOTHESIS 2A. An initiator's prior experience of success increases the likelihood of initiative success more than prior experience of failure does.

HYPOTHESIS 2B. A contributor's prior experience of success increases the likelihood of initiative success more than prior experience of failure does.

Method

Sample and Setting

Our study was conducted in an international energy company, which we call “Enco” for the sake of anonymity. At Enco, we focus on a type of personal initiative that relates to the generation and development of novel, early stage ideas. Enco has set up an independent innovation program to invest in these types of ideas. The program is the advanced version of a suggestion box that companies often use to stimulate, support, and channel personal initiatives (Fairbank and Williams 2001, Frese et al. 1999). The program's goal is to provide a sheltered space for ideas that are radical in nature and to develop these ideas further without a need to adhere to short- or midterm business strategies. No financial rewards or bonuses are issued for people who take initiative. The reward is to work on an interesting idea for which the review committee will provide the necessary funding in case the idea reaches the project status. Although they are not compensated financially, employees can expect a certain degree of recognition within the organization for successful ideas. The firm's review committee evaluates and manages all of the incoming ideas and provides funding and time so that people can further develop their breakthrough ideas. Implementation of these ideas happens within the business units of Enco or through technology transfer companies, not by managers of the innovation program. The managers are very explicit about the ideas they are trying to source: they should radically transform Enco's position in the energy industry. Incremental improvement ideas are not accepted by the innovation program; instead, these ideas are transferred to other people in the organization that might be better able to use and develop them.

Enco's innovation program is an independent unit in the company that is measured by its ability to execute a select number of ideas that are outside the scope of current business strategy. The innovation program managers can only perform well themselves when they sponsor high-quality ideas. Sourcing radical ideas not only is the ambition of the innovation program and its employees but also is linked to the performance assessment of the

innovation program itself. Therefore, and as confirmed by several interviewees, employees' organizational position, power, or status should not have a major influence on the outcome or quality of an initiative. In other words, innovation managers are mainly concerned with the content and quality of an idea, rather than with the status or power of an idea inventor. As such, it is the content of an initiative and the work that idea inventors put into developing an idea that further define whether or not an idea is successful. Innovation managers use the label of “success” as feedback on the value of an idea, which initiators and contributors are responsible for (Greve 2003).

Enco's innovation program database, comprising information about thousands of ideas, served as the centerpiece of our investigation. In addition to collecting and complementing information from this database, we attended team meetings, sat in on idea evaluation panels, and held informal conversations with members of the review committee. This qualitative data greatly helped us to reach an understanding of the research setting (Mintzberg 1979). We also had 25 semistructured interviews with recent initiators. Of these interviews, Table 1 highlights employees' statements, from 10 exemplary cases, regarding whether it would or would not matter if their ideas were accepted or rejected.

One example of radical, proactive initiative taking that we witnessed at the study site is an idea generated and developed by one of the company's engineers. His job requirements did not include making such an effort, and material science was not part of his direct expertise. Still, he had an inspirational moment when watching a movie about climate change. The concept behind the idea was to bind company waste into a novel building material. To pursue his idea, he convinced the company's innovation program to provide initial funding and thus proactively developed an opportunity that he worked on in addition to his normal duties, without receiving a bonus. The outcome was very rewarding. It steadily increased sales for a new innovation and motivated staff, who were energized by being able to pursue their ideas. The idea was not only considered radical because it opened a new market for Enco but also because it was a completely new product with highly innovative features for the existing materials industry. An example of an initiative that was not adopted was an Enco staff member's idea to produce electricity from wind motion without using the conventional windmill. Initially, the idea was considered favorably by the innovation group, particularly because it emphasized a new technology and out-of-the-box thinking. However, after further discussions with experts in the field and after a literature study had been conducted, the innovation team did not further support the development of this idea—most importantly, because experts and prior studies revealed that the physical possibility of being able to generate electricity with

Table 1 Examples of Positive and Negative Consequence Perceptions

Initiator	Prior submissions?	Would it matter if your idea	
		...was not accepted?	...was accepted?
Initiator 1	Yes	"I expect that the people who evaluate my idea have a much broader overview of what's worthwhile to pursue. I've got a lot of faith in the process and think there's probably some good reason behind a rejection. I also see it more as a form of evaluating the different possibilities and only a few of those will really be implemented. It's just part of the game that most ideas won't succeed."	"I can see there are positive consequences. However, for me, this wasn't my main motivation."
Initiator 2	No	"It wouldn't matter to me and it won't stop me. I know that things can change but not every idea can be accepted."	"It's a real bonus if your idea is accepted. I'm sure there'd be some link back to me. Of course, the problem is the implementation. However, you've lit the fire, and it's nice when people recognize that you were involved in something. I want to make other people enthusiastic about my idea."
Initiator 3	No	"I can't imagine any negative consequences for me personally, and it certainly won't stop me from submitting more ideas in the future. The process is very efficient, easy, and fair. I must say I'm pretty impressed by it, and whenever I have a new idea, I'll approach the review committee again."	"Of course, I think it would matter. You've picked up on an idea and shown that you could bring it to the market. You go through a steep learning curve to be successful. It also enriches your normal job because you learn new skills you can apply there, too."
Initiator 4	Yes	"No, in fact, it can lead to many more new ideas and projects in the future because you get some useful feedback."	"Yeah, sure. It would be beneficial for me but also for the company. If my idea is funded, I get to decide how and where to spend the money and get to steer the idea. I can learn a lot from this."
Initiator 5	Yes	"No, not at all. What matters to me is that I can propose those ideas, that I can bounce around my ideas and potentially make a difference."	"It's really great if your ideas are accepted and implemented. With more successes, I feel that my ideas have also become much better. Now, I immediately think of the economic aspects of an initiative. It has taught me to think through the basic principles and calculations behind an idea more carefully."
Initiator 6	No	"I'd be lying if I didn't get a bit grumpy. However, if someone rejects my idea, I'd submit again in the future. In fact, I'd be even more determined because I want to be able to get around a problem. I can't let it go, I want to solve it."	"Yes, there's self-satisfaction. And you get your name out and justify your place here. But that wasn't necessarily the reason I did it. I simply thought the idea would be good and beneficial for [Enco]."
Initiator 7	No	"Ideas have to make money or be beneficial so I don't really care if it isn't successful because then there are probably good reasons for not pursuing it."	"It's really a challenge for me. It's not directly part of my job. If a few people think my idea is exciting, it adds to the routine of my normal job."
Initiator 8	Yes	"Certainly it would be a real pity. Maybe it's a missed opportunity. It wouldn't stop me but it wouldn't really encourage me either."	"It's a kind of combination of factors. It should bring something good to the company and something good to you."
Initiator 9	Yes	"No, doesn't matter at all. I keep coming up with ideas. It's great that someone acknowledges your ideas and gives you feedback. If people are interested and they give me a reason why the idea may or may not work out, that's great."	"Yes, I'd be very happy. The whole process brings extra satisfaction to my job. I like being entrepreneurial, I love solving issues—it's fantastic to see my idea become reality."
Initiator 10	Yes	"I want feedback about my idea; it's great if this happens. I always get constructive feedback from the review committee. So even if an idea isn't accepted, I always get the chance to learn something, and given my submission record, it certainly isn't stopping me from generating new ideas."	"Accepted ideas haven't really helped my career. But I just find it exciting to work on new developments and ideas. It's fun and also an intellectual challenge. I learn a lot when my ideas progress and are actually implemented."

the proposed method (even given the benefit of doubt) was highly unrealistic.

At Enco, an idea is always attributed to one initiator who is in charge of the idea. It is primarily the choice of the initiator to involve more people in his or her ini-

tiative. Idea inventors mentioned that they sought out potential contributors for their highly specialized and often very technical expertise. We also asked specifically about other tasks that idea contributors could fulfill—for instance, providing political or managerial support

or helping to manage the process of getting an idea accepted. However, none of our interviewees indicated that people listed in connection with an idea were ever contacted for these reasons. Again, this supports the notion that status and power, also of the contributors, does play less of a role in our context. As such, contributors seemed to be involved mainly so that they can share knowledge gained in previous initiatives.

The process of generating, developing, and evaluating ideas is structured as follows. After the submission of a short description of the idea, two main steps have to be completed before funding is awarded. First, proponents get the opportunity to briefly pitch their initiative in front of innovation program team members. If this first screening is passed, then the initiators get some time to develop their proposal further. Second, following this primary development phase, proponents present the idea and project plan to a second panel of broader experts. This panel assesses the potential, viability, and impact of the idea. A decision is then made regarding a project plan for the idea—whether and how to go ahead and fund a proof of concept stage. If funding is awarded, the proposal formally becomes a project. Throughout the study we classify a successful idea as one that was approved after the second panel and an unsuccessful idea as one that did not get accepted after either the first or second panel.

We extracted all information from the database in November 2008. This sample consists of a 12-year archive of 2,352 ideas. A data-cleaning procedure (taking out ideas that are still in progress, ideas that were generated in workshops and therefore stimulated by an external driver, and ideas not conceived by Enco staff) resulted in an overall sample consisting of 1,792 ideas generated by 908 initiators. We created two subsamples from this data set, data sets A and B. Data set A was used to predict the probability of submitting an initiative idea in the future. For this dependent variable, we looked over a time frame of four years following the last submission to see whether the initiator submitted another idea; although this is consistent with former studies (e.g., Schwab and Miner 2008), it had an impact on our use of the full data set in creating data set A. Specifically, we needed to exclude all ideas submitted in the last four years of our observation period, as initiators would not have the same allocated time frame to submit another idea. Data set B served to predict the probability of an initiative's success. This data set includes all ideas over all years, but because our study depends on initiators proposing their first idea with a clean slate—that is, no previous experience of success or failure—we excluded all first ideas from the dependent variable. Thus, the outcome of the first idea was used as an independent variable in our data set. Table 2 provides an overview of the main data sets and shows the descriptive characteristics of our dependent and independent variables, outlined below.

Dependent Variables

Repeat Initiative Taking. Our measure of repeat initiative taking was binary, taking a value of 1 if an idea initiator put forth an idea and submitted another idea during the next four years and 0 if he or she did not.

Initiative Success. We classified ideas as successful (i.e., we coded the variable with a value of 1 on a binary scale) if they passed the second screening when Enco reviewed the potential of the idea. Our observations revealed that managers often judged the success of an idea at this point in time. Passing this screening panel also meant that a substantial amount of resources was allocated to further the execution phase. At this stage, an idea would transform into a more formal project, and responsibility for supervising the idea would partially be transferred from Enco's review committee to a business unit.

Independent Variables

For the analysis of repeat initiative taking, we separately tallied all successes and failures that the initiator had experienced with both the focal initiative and any prior initiative (*initiators' success experience* and *initiators' failure experience*). For the analysis of initiative success, we separately counted all successes and failures that the focal initiator had experienced in initiating prior initiatives only (*initiators' prior success experience* and *initiators' prior failure experience*). Similarly, for the focal contributor of an initiative, we counted the prior success and failure experiences of initiating ideas and tallied them if there were more than one contributor to an initiative (*contributors' prior success experience* and *contributors' prior failure experience*).

Control Variables

Initiators who engage in the innovation program for a longer time frame might gain a higher organizational standing over time, which could affect their inclination to repeatedly submit ideas. Moreover, they might develop specific relationships with the innovation management program leaders, which could influence whether their ideas turn out to be successful. Therefore we control for *initiators' program tenure*. This control sums up the number of months an initiator is active prior to submitting a focal idea, starting from his or her very first idea submission.

We also controlled for the *number of contributors* related to an idea. We included this variable to capture the effect of a social net around an initiative. This social net could be influential not only as a social support instrument, encouraging initiators to continue generating ideas, but also as a mechanism of bringing together different backgrounds and thereby enhancing the success chances of an initiative (Hargadon and Bechky 2006, Kijkuit and Van den Ende 2010).

Table 2 Overview of Data Sets

Description	Full sample	Data set A	Data set B
Panel A			
N	1,792	1,390	887
Clusters	908	706	310
Difference from full sample	—	Ideas submitted in the last four years excluded	Very first idea of initiator excluded
Idea sequence	1–max	1–max	2–max
Time frame	Nov 1996–Oct 2008	Nov 1996–Oct 2004	Nov 1996–Oct 2008
Dependent variable	—	<i>Repeat initiative taking</i>	<i>Initiative success</i>
Purpose	Descriptive statistics and correlation matrix	Main analysis	Main analysis
Table(s)	3	4 and 5	6 and 7
Panel B			
	Full sample	Data set A	Data set B
Variable	Mean (SD)	Mean (SD)	Mean (SD)
<i>Repeat initiative taking</i>	0.52 (0.50)	0.56 (0.50)	
<i>Initiative success</i>	0.10 (0.30)		0.10 (0.30)
<i>Initiators' success experience</i>		0.12 (0.38)	
<i>Initiators' failure experience</i>		3.69 (6.32)	
<i>Initiators' prior success experience</i>	0.10 (0.40)		0.19 (0.55)
<i>Initiators' prior failure experience</i>	2.68 (6.20)		5.41 (7.92)
<i>Contributors' prior success experience</i>	0.03 (0.23)		0.03 (0.21)
<i>Contributors' prior failure experience</i>	0.44 (2.25)		0.56 (2.92)

Additionally, we controlled for several characteristics related to an idea that could influence an employee's inclination to take initiative repeatedly, as well as to generate initiatives that are better than previous ones. Subsequent ideas that are similar to previous ones might trigger repeat initiative taking because idea initiators think that they should exploit their knowledge in a similarly functional domain again (Schwab and Miner 2008). However, if initiators submit ideas that are similar to previous ones, it could be that these are just refinements with little chance of being accepted. To capture the *similarity to previous initiatives* of the same initiator, we examined the given titles and counted how many relevant words in the respective heading overlap with captions of any idea previously submitted by the same initiator.

Ideas marked as confidential (dummy coded 1) are of strategic value to the company and consequently appear to be ranked as more important by Enco. Although Enco uses three labels to classify *initiative confidentiality* (not confidential, confidential, and very confidential), no idea was classified with the lowest label. Although confidentiality is not an ideal measure for how disruptive and radical an idea is, in our interviews we gathered that ideas classified as very confidential can be considered

the most radical because they were potentially dealing with a breakthrough technology that could have a high strategic value. For instance, one of the innovation managers confirmed that “if you want to differentiate between ideas which are all, in some way or other, radical, then the confidentiality marker is the best way to do so.”

Recently submitted ideas are believed to be fresh in one's mind, more salient, and more easily recalled (Levitt and March 1988). An employee who recently took initiative might therefore have a higher chance of generating another idea, because he or she is still actively involved in creative thinking processes. Additionally, if initiatives are taken too quickly, it is possible that an employee is too attached to prior ideas that could damage subsequent initiative success. To control for this effect, we took the date an idea was submitted and measured the number of months passed between a prior submission and a current initiative submission by a single idea initiator. This procedure gave us a measure of *time elapsed since previous initiative*. We also included a *time* variable indicating in which month the idea was submitted since the inception of the innovation program. This variable is included as a control because at the

inception of an innovation program, many people might submit ideas because no other outlet has been available for this type of idea before. Also, when a new innovation program starts, many people become aware of it, which might trigger more idea submissions but not necessarily better ones. Finally, we measured an idea's *lifetime* by taking the differences (in months) between the date an idea was submitted and the date of the last activity or alteration pertaining to this idea. We incorporate this measure into models regressing on repeat initiative taking because a long initiative process might prevent initiators from having the time and energy required to generate a new idea.

Analysis

We used logistic regressions to estimate both the likelihood that an idea initiator submits another idea in the future and the likelihood that this idea is a success. Since we find repeated observations for the same initiator across time, we correct for the nonindependence of observations belonging to the same initiator and report robust standard errors adjusted for clustered observations of idea initiators (Audia and Goncalo 2007, Hallen 2008). Coefficients estimated through a logistic regression do not directly indicate effect size (Hoetker 2007, Long and Freese 2006). Therefore, we use a variety of methods to interpret the findings, including depicting predicted probabilities of key independent variables and calculating changes in predicted probabilities following procedures suggested by Long and Freese (2006).

Results

Table 3 reports descriptive statistics for the full sample ($n = 1,792$). The average success rate of the full sample was 10%, which confirms our claim that only a small number of initiatives generally succeed. An initiative was followed by a subsequent idea in 52% of the cases. There appeared to be no significant correlation between initiative success and repeat initiative taking.

The highest variance inflation factor (VIF) we encountered in our models regressing on repeat initiative taking is 3.08, with a mean VIF of 1.60; the highest VIF in models regressing on initiative success is 2.61, with a mean VIF of 1.45. Hence, multicollinearity did not unduly influence regression estimates. We also performed the Box-Tidwell transformation test and added interactions between independent variables and their natural logarithm to each model (Hilbe 2009). Since no interaction term turned out to be significant, nonlinearity is not a problem. Moreover, because we used robust standard errors adjusted for clustering, we applied Wald tests instead of the more conventional likelihood-ratio test (Sribney 2007). The reported Wald χ^2 statistics indicate overall significance of the models. After fitting each model, we also tested the significance of coefficients that were added to the baseline model (Cameron and Trivedi 2009).

Learning and Repeat Initiative Taking

Table 4 shows the results of the analysis where repeat initiative taking is the dependent variable. For these

Table 3 Descriptive Statistics and Correlation Matrix

Variable	Mean	SD	Min	Max	1	2	3	4
1 Repeat initiative taking	0.52	0.50	0	1				
2 Initiative success	0.10	0.30	0	1	-0.02			
3 Initiators' prior success experience	0.10	0.40	0	5	0.05*	0.13*		
4 Initiators' prior failure experience	2.68	6.20	0	46	0.30*	-0.05	0.10*	
5 Contributors' prior success experience	0.03	0.23	0	4	-0.05*	0.21*	0.03	-0.05
6 Contributors' prior failure experience	0.44	2.25	0	43	0.00	0.07*	0.03	0.08*
7 Initiators' program tenure	9.78	18.06	0	123	0.13*	0.14*	0.37*	0.39*
8 Number of contributors	0.66	1.20	0	12	-0.05*	0.16*	0.03	-0.09*
9 Similarity to previous initiatives	0.33	0.87	0	9	0.14*	-0.01	0.21*	0.28*
10 Initiative confidentiality	0.27	0.45	0	1	-0.02	0.22*	0.03	-0.14*
11 Time elapsed since previous initiative	4.22	10.73	0	96	-0.03	0.13*	0.15*	-0.01
12 Time	63.78	32.94	1	145	-0.10*	0.04	0.13*	0.16*
13 Lifetime	10.46	16.77	0	103	-0.01	0.54*	0.09*	-0.12*
Variable	5	6	7	8	9	10	11	12
6 Contributors' prior failure experience	0.17*							
7 Initiators' program tenure	0.07*	0.10*						
8 Number of contributors	0.20*	0.36*	0.01					
9 Similarity to previous initiatives	-0.03	0.01	0.26*	-0.02				
10 Initiative confidentiality	0.12*	0.01	0.01	0.02	-0.01			
11 Time elapsed since previous initiative	0.05*	0.07*	0.69*	0.04	0.09*	0.08*		
12 Time	0.04	0.01	0.30*	-0.26*	0.04	0.02	0.18*	
13 Lifetime	0.16*	0.04	0.03	0.19*	0.01	0.19*	0.06*	-0.08*

Notes. $N = 1,792$. Clusters = 908.

* $p < 0.05$.

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Table 4 Results of Logistic Regression Analysis of Repeat Initiative Taking

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Initiators' program tenure</i>	0.06*** (0.013)	0.06*** (0.013)	0.00 (0.009)	−0.00 (0.009)	−0.01 (0.009)
<i>Number of contributors</i>	−0.16** (0.058)	−0.16** (0.058)	−0.13* (0.054)	−0.14* (0.054)	−0.13* (0.053)
<i>Similarity to previous initiatives</i>	0.24** (0.092)	0.24** (0.093)	0.05 (0.072)	0.04 (0.071)	0.01 (0.071)
<i>Initiative confidentiality</i>	−0.06 (0.184)	−0.05 (0.185)	0.14 (0.145)	0.13 (0.145)	0.14 (0.143)
<i>Time elapsed since previous initiative</i>	−0.06*** (0.017)	−0.06*** (0.017)	−0.01 (0.011)	−0.00 (0.011)	−0.00 (0.011)
<i>Time</i>	−0.01* (0.003)	−0.01* (0.003)	−0.01*** (0.003)	−0.01*** (0.003)	−0.01*** (0.003)
<i>Lifetime</i>	0.01+ (0.005)	0.01* (0.005)	0.02** (0.005)	0.01** (0.005)	0.01** (0.005)
<i>Initiators' success experience</i>		−0.15 (0.225)		0.22 (0.194)	0.31 (0.192)
<i>Initiators' failure experience</i>			0.33*** (0.043)	0.34*** (0.046)	0.48*** (0.048)
<i>Initiators' failure experience</i> ²					−0.01*** (0.001)
<i>Constant</i>	0.36* (0.168)	0.35* (0.168)	−0.20 (0.174)	−0.19 (0.175)	−0.37* (0.172)
Wald χ^2	45.01***	44.98***	97.09***	93.70***	145.52***
Pseudo R^2	0.06	0.06	0.13	0.13	0.14
Log pseudo-likelihood	−899.22	−898.83	−831.85	−831.15	−823.23
Wald test (variables added to base)		0.48	58.81***	55.02***	101.78***
Wald test (equality of variables) ^a				0.42	0.83
Wald test (quadratic term)					63.19***
<i>N</i>	1,390	1,390	1,390	1,390	1,390
Clusters	706	706	706	706	706

Note. Robust standard errors are in parentheses.

^aConcerning equality of effect of initiators' success and initiators' failure experience.

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

analyses, we used data set A, which excludes all ideas submitted in the last four years of our observation period.

We find no support for Hypothesis 1, which proposed that the success more than the failure of an idea initiator has a positive impact on repeat initiative taking. A Wald test, conducted after the coefficient is added in Model 2, turns out not to be significant. However, we do find a positive association between an initiator's failure experience and repeat initiative taking (Table 4, Model 4: $\beta = 0.34$, $p \leq 0.001$). The Wald χ^2 value for the variables added to the base is much higher for Model 3 compared with Model 2 (see Table 4). This indicates that Model 3, which included the initiators' failure experience coefficient, fits the data much better than Model 2, where initiators' failure experience was not included but initiators' success experience was. However, the Wald test for equality of variables shows that initiators' failure experience is not significantly more positive than initiators' success experience (Table 4, Model 4: $\chi^2 = 0.42$, nonsignificant). Of course, this does not take away the finding that the failure experience coefficient, on

its own, significantly contributes to explaining variation in the likelihood of initiators to repeatedly take the initiative.² The net effect of idea initiators' failure experience is depicted in Figure 1 (coefficients are taken from Model 4; all other variables are held constant at their mean value). The graph shows the positive but diminishing effect of initiators' failure experience

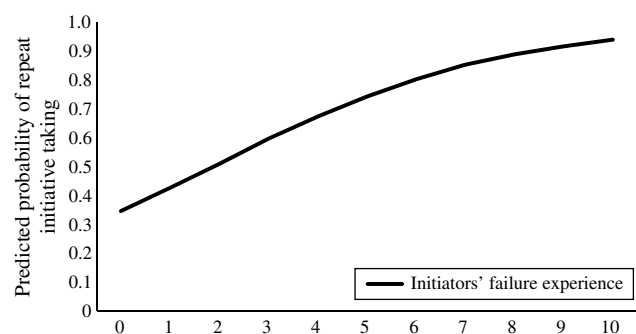
Figure 1 Effect of Initiators' Failure Experience on Repeat Initiative Taking

Table 5 Changes in Predicted Probabilities of Repeat Initiative Taking

Variable	Changes in predicted probabilities		
	Min > Max	±1/2	±SD/2
<i>Initiators' program tenure</i>	-0.01	0.00	0.00
<i>Number of contributors</i>	-0.38	-0.03	-0.04
<i>Similarity to previous initiatives</i>	0.08	0.01	0.01
<i>Initiative confidentiality</i>	0.03	0.03	0.01
<i>Time elapsed since previous initiative</i>	-0.07	0.00	-0.01
<i>Time</i>	-0.20	0.00	-0.05
<i>Lifetime</i>	0.22	0.00	0.04
<i>Initiators' success experience</i>	0.13	0.05	0.02
<i>Initiators' failure experience</i>	0.65	0.08	0.46

on the predicted probability of repeat initiative taking. In Table 5, we provide additional detail to interpret the coefficients taken from Model 4 in Table 4. Specifically, we report changes in predicted probability as the independent variable changes (1) from its minimum to its maximum, (2) from one-half unit below base value to one-half unit above, and (3) from one-half of the standard deviation below base to one-half of the standard deviation above. Note that when the effect of one variable is calculated, all others are held constant at their mean value. For example, a change in failure experience, from one-half unit below base value to one-half unit above, increases the probability of repeat initiative taking by 8%. To further explore the unexpected finding of a positive association between initiators' failure experience and repeat initiative taking, we also added a squared term of initiators' failure experience, which turns out to be significant (Table 4, Model 5: $\beta = -0.01$, $p \leq 0.001$). The calculated inflection point appears when failure experiences reach a value of 27, after which it begins to have a negative effect on repeat initiative taking.³

Some initial explanations for our finding that failure rather than success is positively associated with repeat initiative taking can be found in the qualitative data collected on site. In Table 1, we listed some exemplary statements of recent initiators who we asked whether it would matter if their idea were a success (accepted) or a failure (rejected). One initiator, for instance, indicated that nonacceptance of the idea “can lead to many more new ideas and projects in the future.” Another person said, “I’d be even more determined because I want to be able to get around a problem. I can’t let it go, I want to solve it.”

Learning and Initiative Success

We use data set B, which excludes all first ideas from the dependent variable to test the hypotheses related to the effect of learning on initiative success.

Our results do support Hypotheses 2A and 2B. Hence, there is a positive effect of prior initiation success experience on the success of a current initiative for both potential holders of this experience: the current initiator (Table 6, Model 8: $\beta = 0.55$, $p \leq 0.01$) and the current contributors (Table 6, Model 8: $\beta = 1.05$, $p \leq 0.05$). Joint Wald tests of the respective experiences, conducted after these coefficients have been added to the baseline model, indicate statistical significance. We also find significant differences between the coefficients of interest. First, the Wald χ^2 value for the variables added to the base is higher for models where the coefficients for initiators' prior success experience (Table 6, Model 2 versus Model 3) and contributors' prior success experience is included (Table 6, Model 5 versus Model 6). These findings indicate that these models fit the data better than those where initiators' or contributors' prior experiences of failure were included. Moreover, running the Wald test to check for the equality of coefficients indicates that the coefficient for initiators' prior experiences of success is significantly more positive than the coefficient for initiator's prior experiences of failure (Table 6, Model 4: $\chi^2 = 10.26$, $p \leq 0.001$). Also, the contributors' prior success experience coefficient is significantly more positive than the coefficient for contributors' prior failure experience (Table 6, Model 7: $\chi^2 = 4.70$, $p \leq 0.05$).⁴ Figure 2 depicts the net effect of an initiators' (solid line) and contributors' prior experiences of success (dashed line) on the predicted probabilities of initiative success, with all other respective variables held constant at their mean value. The figure shows that the more experiences in initiating current initiators or contributors have, the higher the positive impact on initiative success. For Table 7 we recalculated changes in predicted probability based on Model 8 reported in Table 6. A change in an initiator's or contributor's prior success experience, from zero to its maximum value, increases the probability of the initiative success by 44% or 76%, respectively, with all other variables measured at their mean value.

Anecdotal evidence from our interviews reported in Table 1 supports our quantitative findings. One employee said, “With more successes, I feel that my ideas have also become much better. Now I immediately think of the economic aspects of an initiative.” Another initiator argued that “[i]t’s fun and also an intellectual challenge. I learn a lot when my ideas progress and are actually implemented.”

A further investigation of the control variables also shows some interesting patterns. For instance, initiative confidentiality has a positive and significant coefficient. This finding shows that generating an idea that the innovation program aspires helped in the success of that idea. In other words, the ambition of the innovation program and the actual implementation of that ambition seemed to be very well aligned. In additional analyses, we also

Table 6 Results of Logistic Regression Analysis of Initiative Success

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
<i>Initiators' program tenure</i>	0.03** (0.008)	0.02* (0.008)	0.03*** (0.007)	0.02** (0.008)	0.02** (0.008)	0.03** (0.008)	0.02** (0.008)	0.02* (0.008)
<i>Number of contributors</i>	0.34*** (0.072)	0.34*** (0.065)	0.34*** (0.064)	0.33*** (0.061)	0.29*** (0.065)	0.36*** (0.081)	0.32*** (0.082)	0.30*** (0.079)
<i>Similarity to previous initiatives</i>	-0.07 (0.145)	-0.11 (0.161)	-0.05 (0.143)	-0.10 (0.160)	-0.06 (0.145)	-0.07 (0.144)	-0.06 (0.144)	-0.09 (0.160)
<i>Initiative confidentiality</i>	1.28*** (0.256)	1.28*** (0.255)	1.18*** (0.254)	1.22*** (0.260)	1.22*** (0.259)	1.28*** (0.256)	1.22*** (0.260)	1.17*** (0.264)
<i>Time elapsed since previous initiative</i>	0.00 (0.009)	0.01 (0.010)	-0.00 (0.009)	0.01 (0.010)	0.00 (0.010)	0.00 (0.009)	0.00 (0.009)	0.01 (0.011)
<i>Time</i>	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)	0.00 (0.006)
<i>Initiators' prior success experience</i>		0.57** (0.184)		0.54** (0.179)				0.55** (0.183)
<i>Initiators' prior failure experience</i>			-0.04 (0.024)	-0.02 (0.019)				-0.02 (0.018)
<i>Contributors' prior success experience</i>					1.11* (0.535)		1.15* (0.538)	1.05* (0.522)
<i>Contributors' prior failure experience</i>						-0.01 (0.020)	-0.02 (0.029)	-0.01 (0.034)
<i>Constant</i>	-3.73*** (0.400)	-3.71*** (0.399)	-3.62*** (0.388)	-3.64*** (0.394)	-3.63*** (0.394)	-3.75*** (0.405)	-3.67*** (0.402)	-3.59*** (0.400)
Wald χ^2	95.81***	111.29***	105.12***	118.5***	86.33***	99.87***	89.49***	101.09***
Pseudo R^2	0.15	0.17	0.16	0.17	0.16	0.15	0.16	0.18
Log pseudo-likelihood	-247.46	-241.77	-245.89	-241.18	-244.30	-247.41	-244.11	-238.30
Wald test (variables added to base)		9.71**	2.57	12.77**	4.32*	0.31	4.92	16.86**
Wald test (equality of variables) ^a				10.26***				9.79**
Wald test (equality of variables) ^b							4.70*	4.05*
<i>N</i>	887	887	887	887	887	887	887	887
Clusters	310	310	310	310	310	310	310	310

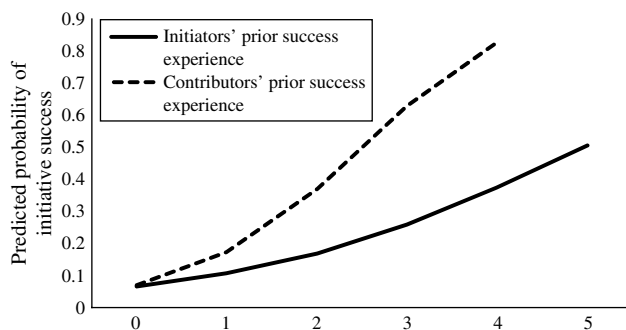
Note. Robust standard errors are in parentheses.

^aConcerning equality of effect of initiators' prior success and initiators' prior failure experience.

^bConcerning equality of effect of contributors' prior success and contributors' prior failure experience.

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

explored whether inventor status, as we expected, did not have a major influence on the outcome of an initiative. To test this, we used a proxy for status. For this we constructed the percentage of people that have been initiators of an idea themselves. One could argue that the position of a group of people working on a particular

Figure 2 Effect of Initiators' and Contributors' Prior Success Experience on Initiative Success**Table 7 Changes in Predicted Probabilities of Initiative Success**

Variable	Changes in predicted probabilities		
	Min > Max	$\pm 1/2$	$\pm SD/2$
<i>Initiators' program tenure</i>	0.31	0.00	0.03
<i>Number of contributors</i>	0.56	0.02	0.02
<i>Similarity to previous initiatives</i>	-0.04	-0.01	-0.01
<i>Initiative confidentiality</i>	0.10	0.08	0.03
<i>Time elapsed since previous initiative</i>	0.07	0.00	0.01
<i>Time</i>	0.01	0.00	0.00
<i>Initiators' prior success experience</i>	0.44	0.04	0.02
<i>Initiators' prior failure experience</i>	-0.04	0.00	-0.01
<i>Contributors' prior success experience</i>	0.76	0.07	0.01
<i>Contributors' prior failure experience</i>	-0.03	0.00	0.00

initiative is higher if many of these people have initiated instead of contributed to a prior idea. However, after including the proxy to our models, we neither discovered a positive main effect on initiative success nor a significant moderating influence on the relation between initiator's and contributor's experiences of success and initiative success. Hence, this finding is also in line with the purpose of the program, which is to support idea initiators, independent of their status, who have difficulty finding support for their risky, radical ideas.

Discussion

In this study we identified that, contrary to our expectations, initiators' experience of failure, rather than experience of success, stimulates future initiation of ideas. However, we did find confirmation for our hypotheses that initiators' and contributors' successes help to generate successful ideas. Taking these findings together, we can conclude that whereas failure in initiating an idea stimulates people to take the initiative again, prior success in initiating an idea is related to better performance of a subsequent idea. These results offer opportunities and challenges for scholars and practitioners who are interested in both repeated and high-quality personal initiative taking.

Theoretical Implications

Our research explored how learning and continued action unfold in initiative taking efforts. As we disentangle success from failure, our research extends efforts to take a closer look at past experience (Madsen and Desai 2010). The findings also respond to calls for more empirical work on the mechanisms of continuous creativity (Skilton and Dooley 2010). More specifically, our study shows that inferences employees make from experience in personal initiative can be counter intuitive (Parker and Collins 2010). We offer two explanations for this finding.

First, in proactive activities, extrinsic motives are of less importance; instead, intrinsic motivation is of utmost importance (Frese et al. 1999, Morrison and Phelps 1999). When employees experience failure, they will not so easily give up and might even seek increased risk if they feel challenged, which might stimulate them to experiment further and come up with new proposals (Mikulincer 1989, Sitkin 1992). Initiators learn that there is a discrepancy between what is desired and what has been achieved so far. Assuming that people have positive outcome expectations when they come up with a radical initiative, failure of this initiative can lead to increased persistence (Locke and Latham 1990). Successful idea initiators, on the other hand, might be very busy implementing their idea. Moreover, they might not feel challenged to generate another idea because they have accomplished certain learning goals (VandeWalle

and Cummings 1997). People who have success experience might, therefore, learn less about the need to be resilient, which could decrease their inclination to take initiative again (Sitkin 1992).

A second point is that when people voluntarily take initiative and fail, they actually learn that it is safe to take more initiative and that there are indeed few, if any, serious consequences to a failed initiative (Baer and Frese 2003, Catmull 2008, Edmondson 1999, van Dyck et al. 2005). Prior initiative failure can also decrease the threshold to take initiative again because of lower expectations. This may be because the outcomes of an initiative are not visible to a broader audience, which reduces the need to cope with negative cognitive demands and the fear of trying again. Prior initiative failure also decreases the need of employees to practice impression management, which is considered a barrier to learning (Van de Ven and Polley 1992). Employees can only, to a lesser degree, learn this from initiative success. They never experienced that it is acceptable to submit an initiative that will potentially fail. As a result, they could become more careful with initiative taking efforts. Similarly, previous success may raise the individual and collective expectations of employees (Locke and Latham 1990) and thus undermine an initiator's freedom of action or scope of search (Skilton and Dooley 2010).

In our additional analyses, we found that employees in our sample have a very high resilience when it comes to dealing with failure. However, we also found that when the number of prior failures is too high, people might feel less challenged and less motivated to initiate another idea. Instead, they feel increasingly helpless, lose confidence in their abilities, and relate the activities to negative emotions. These responses appear to impair a person's inclination to continue putting forth personal initiatives. Entrepreneurship literature has found similar patterns; for example, research by Ucbasaran et al. (2009) shows that although a small number of failures encourage some entrepreneurs to identify more opportunities, a large number of prior failures decrease their motivation to start up new businesses.

A context characterized by discretionary behavior may also offer further explanations for our hypothesized finding that success is more positively associated with subsequent initiative success than failure. It seems that experiencing failure does not offer the knowledge necessary to improve the quality of a future initiative. With failure experience, employees learn that it is safe to take initiative again, and accordingly they do, but only success experience offers initiators the end-to-end, bigger-picture knowledge that allows them to excel in a new effort (Kim et al. 2009). Achieving success is a rare event, but because it has a major impact on the organization and the initiator, there is a higher willingness to learn from those experiences (Lampel et al. 2009). One interpretation of why the effect size of contributors versus

initiators gets larger with more prior success experiences is that the returns with respect to the lessons that an inventor can draw from increasing numbers of personal successes are limited. If one or more contributors with their own experience of successfully initiating ideas join the development of a focal idea, they bring with them different perspectives, strategies that lead to success, and an understanding of how best to create a match between an initiative and company requirements. The diversity of these success experiences might be more valuable than just the experiences of the initiator alone. Moreover, contributors can serve as helpful mentors and bring with them symbolic capital, which they can use, for instance, to raise additional awareness of a focal initiative (Cattani and Ferriani 2008).

Although the scope of this study focused on radical ideas, discerning further between different types of ideas is important because learning from smaller, improvement-oriented ideas might unfold in a different way than learning from radical ideas (McGrath 2001).⁵ The motivation to generate another idea after experiencing many prior failures might, for instance, be higher if an idea was characterized as very radical. In this case, initiators could attribute the failure to the nature and characteristics of the novel idea rather than their personal skills and abilities. Moreover, failures might induce an even stronger feeling of being positively challenged to continue suggesting another initiative if the challenge a person failed with earlier is considered very disruptive and hence entailed more risks and uncertainties to begin with (Baer 2012, Mikulincer 1989, Sitkin 1992). In additional analyses (available from the first author upon request), we used our data to test whether idea radicalness had a moderating effect on the relationship between failure experiences and repeat initiative taking. Overall, the results show that the likelihood that idea initiators take the initiative again is more or less independent of the idea radicalness.⁶ Furthermore, it can be suggested that idea radicalness could also moderate the relationship between initiators' prior success experiences and initiative performance. This is because initiators can hardly apply content dimensions of experience from successful ideas to a new initiative, particularly if this initiative is radical again. In a radical innovation context, every idea is different and exploratory learning is required, which stimulates the creation of internal variety instead of a "directed search" process, which highlights the value of intensifying and further expanding initial insights (McGrath 2001). Content knowledge about a previous initiative can contribute little to building a new knowledge scaffold, which is necessary to develop novel, radical ideas. Also, content experience is difficult-to-transfer, sticky knowledge and therefore may hinder effective learning for subsequent radical initiative success. Although this argumentation would suggest

a negative moderation of idea radicalness on the relationship between initiators' prior success experience and initiative success, our additional analyses (available from the first author upon request) provide some evidence, albeit very weak, for the notion that when working on a more radical idea, more prior experiences of success can be conducive to achieving success. One explanation for this finding could be that initiators and contributors with a track record of many prior successes are particularly well suited to handle the process-specific, non-content-related challenges around a novel and radical idea proposal. However, the interaction showed often low and ranging marginal effects. When each observation is looked at separately using the "inteff" command in Stata (Norton et al. 2004), many were also found to be nonsignificant. Moreover, since rough proxies were used to further differentiate among what should be radical ideas, the interpretation of the revealed effect needs to be treated with some caution. Hence, further research is warranted that investigates the whole spectrum of ideas with more accurate indicators for very incremental or breakthrough, radical ideas.

Our study is one of the first to directly address learning behavior for nonrequired activities such as taking initiative. The findings have implications for other streams of research studying—for instance, organizational citizenship behavior (Podsakoff et al. 2000), where there is also the implicit assumption that people make voluntary contributions that do not belong within the scope of their normal tasks. Moreover, our findings can be applied in contexts where negative outcomes for activities are not disclosed. Initiative failure is usually not visible to anyone except the review committee and the initiators. Another context in which this is the case is an anonymous submission system for academic articles. The rejection of a paper might signal authors that further work is needed, which could challenge them to revise their manuscript. Authors could have the perception that they learned from the reviews, and since the prior rejection is not visible to a broader audience, they are free to submit the manuscript to another journal.

Managerial Implications

Burgelman (1988) shows that "top management should be alert to proposals that emerge deep in the organization because they are likely to reveal unrealized aspects of its capabilities and associated opportunities" (p. 83). Hence, initiative taking should be continuously utilized and supported. However, management may be afraid that initiative reviewing bodies can become a serious threat for repeat initiative taking because these reviewing bodies need to reject many initiatives, as not all are equally worth developing. However, our research shows that the decision not to accept the majority of initiatives has a positive rather than a negative influence on the inclination of proactive individuals to submit another initiative.

Whereas prior initiating failure stimulates people to take initiative again, only prior initiating success is related to better initiative outcomes. The managerial implication is significant: if failure reinforces more initiatives that are similar to prior ones, an assessment system of ideas will, at some point, be cluttered by bad initiatives. This places a heavy administrative burden on managers who need to go through and review all those initiatives. Moreover, companies cannot afford to have too many resources allocated to low-quality initiatives.

One remedy that emerged from our results is to include previously successful contributors in a new personal initiative. Experienced organizational members can share lessons learned to help improve an initiative's chances of success. The more success experiences they have, the more they might serve as mentors, guiding, for instance, less experienced inventors through the process and thereby serving as role models. More generally, we also found a positive effect from an increased number of contributors on initiative success. These findings point toward the importance of social network size as a catalyst for collaborative learning and knowledge exchange to improve creative outcomes (Hargadon and Bechky 2006, Kijkuit and Van den Ende 2010). Companies can steer network building and the systematic involvement of prior successful initiators by designing mentorship programs where initiators are assigned to previously successful initiators. This can also have the advantage that by being exposed to these new initiatives, previously successful people can identify novel opportunities in their own and others' knowledge pools (Hargadon and Bechky 2006). Moreover, the general findings of our study could imply that more attention needs to be paid to a targeted feedback strategy. For example, idea evaluators could elaborate more with failed initiators on why an initiative was not accepted and which general criteria have to be met before another idea is submitted. Initiators that succeeded should receive more motivational feedback so that they continue taking initiative.

From our observations and interviews, we can conclude that Enco seems to have managed to create a feeling of high safety and install a positive climate that promotes initiative taking despite many prior idea failures (Baer and Frese 2003, Burgelman 1983, Catmull 2008, Edmondson 1999). Employees also value the climate within Enco's innovation program very much. In semistructured interviews, many recent idea originators said that they are not afraid of an idea failing (see Table 1 for exemplary statements). Moreover, the evaluation process is perceived as fair. For instance, one person said, "The process is very efficient, easy, and fair. I must say I'm pretty impressed by it, and whenever I have a new idea, I'll approach the review committee again." Thus, a safe environment and a culture that does not punish failures can be important facilitators for learning. Other managers are advised to support similar policies if

they want to maximize initiators' learning effect based on a prior initiative's success or failure. Error management training programs might be important to move an organization in that direction (see Keith and Frese 2008, van Dyck et al. 2005).

Limitations and Future Research

There are some limitations of our study that present opportunities for future research. A first concern could be that the stage at which we chose to mark success only provides the initiator with another green light for an even longer journey. The second panel approval stage nevertheless marks an important point in the life of an idea because most useless or noninnovative ideas are sorted out well before this point. It is therefore a major success to get more serious managerial and financial support when the process of review for 90% of the other ideas has halted. However, an idea labeled as "failure" can still lead to subsequent successes, and vice versa, an adopted initiative can still turn out to be a failure (Van de Ven and Polley 1992). The case of 3M is a famous example where early applications for a new type of glue were unsuccessful, and only later on, after discovering a different use for this glue, an extremely successful product was launched. In this study we focused on the generation and further refinement of ideas, not their implementation. It is therefore an interesting question to explore what happens with successful and failed ideas after they have been classified as such. However, we believe that because of the voluntary nature of initiative taking, the incentives proactive initiators have to push forward for a rejected idea might be less than those of, for instance, engineers at 3M, whose job it is to search for commercialization options for ideas that received substantial funding and who might therefore be more dependent on the ultimate performance outcome of initiatives. An interesting question is also whether the sequence of success or failure affects repeat initiative taking and initiative success. Our theory and analysis is based on the assumption that the more experiences of success someone has accumulated, the higher the likelihood of repeat initiative taking and initiative success, but we additionally explored whether a change in the two most recent initiatives (i.e., first experiencing failure then success, or vice versa) would affect our two dependent variables. The results confirm that a change (positive or negative) concerning the two most recent initiatives does not significantly affect repeat initiative taking or the success of the focal initiative. However, we encourage future researchers to investigate this issue further using potentially longer and different sequence strings.

Other interesting opportunities for future research lie in the comparison of radical and incremental ideas and potentially different ways of learning across these initiatives. Our research scope was on radical initiatives, and further separating these initiatives into less and more

radical did not prove to have a major (moderating) influence on either repeat initiative taking or initiative success. However, a next step could be to test the same hypotheses in a context where employees are encouraged to also generate more incremental improvement ideas. Linking the exploration of this new data to the earlier issue of idea implementation could be another path worth pursuing. The implementation of a radical idea might look very different than the implementation and commercialization of an incremental idea. For instance, it might be much more difficult to implement a radical idea because of higher internal opposition.

We also conducted this study in one large organization with the advantage of being able to hold organizational context factors constant. However, one could argue that people's motivation to commit and voluntarily contribute to an innovation management program might be contingent on internal incentive structures, organizational routines, or the organizational culture and how errors are handled in that organization in general (Baer and Frese 2003, Frese 1995, Keith and Frese 2008, van Dyck et al. 2005). However, our question was to investigate what initiative originators learned from success or failure *once* they submitted an initiative. Focusing on the performance outcomes of initiative taking is in that sense a viable approach and consistent with earlier research designs (e.g., Cattani and Ferriani 2008), but to capture the full driving forces of personal initiative, further research is warranted about the idea initiators' internal processes as well as how inventors shape and are shaped by the environment. Research in this area could, for instance, explore how social skills influence the degree of feedback idea inventors receive or how their associative thinking skills trigger learning processes. It can be argued that the personality of idea originators as well as organizational context, incentive structures, and error management culture can enhance or diminish the effect of success and failure on repeat initiative taking or initiative success. However, we do not think that the direction of the effect will change. Research by Miron et al. (2004), for instance, confirms that innovation culture enhances the effect of individual creativity on individual innovation performance. High innovation culture created a steeper slope, but the slope for low innovation culture was still positive. This finding also leads us to the conclusion that our results should be generalizable to other companies, or at least to those who have innovation management programs in place. Although the programs are not a prerequisite, having these structures in place sends out a clear signal that a company is open for the suggestions and ideas from their employees. Finally, organizational cultures and climates may change over time, and a strength of our study is that it covers a time span of 12 years. We found that the relationship held while controlling for a time variable, which indicates the month the initiative was submitted since the inception of

the database. This gives some additional evidence for the generalizability of our findings to other firms. Still, an opportunity for future research includes examining the proposed moderating effect of company context and/or initiator personality on learning magnitude.

Unfortunately, we were not able to measure the antecedents of taking personal initiative and therefore could not disentangle the effect of personality or work environment on learning from initiative taking (Parker et al. 2006, 2010). Although we know that ability and desire to take initiative is an important selection criterion for new hires at Enco, we are limited to giving recommendations on what companies need to do to design a proactive, initiative taking workforce. Moreover, our analysis is restricted by having limited demographic data of the idea initiators. So a concern could be that people higher in the organizational ladder could manage to have more leeway and control over strategic resources, which could help them in succeeding with their initiative. However, continuing with this example, higher-ranked people do not necessarily need to submit their ideas to the innovation program because they can develop them without the assistance and financial backing of the program. Therefore, this issue is less significant. Also, Enco's innovation program is an independent unit in the company that is measured by its ability to execute a select number of ideas that are outside the scope of the current business strategy. Accomplishing this goal is only possible by sponsoring high-quality ideas independent of the position, rank, or status of the employee in the organization. Because of the features and structure of the innovation program, which is accessible to everybody inside the company, the need for internal selling of an idea by an originator to a decision maker is less prevalent (De Clercq et al. 2011). Future research, however, could explore the issue of initiative selling and the influence of inventors' status or power in organizations where there is not an independent innovation program in place. These limitations notwithstanding, our research illustrates how initiative taking, if it is shown, can be channeled, improved, and best utilized on a continuous basis.

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Endnotes

¹Although we focus on these mechanisms, this is not to say that learning cannot take place through other processes nor

that performance outcomes might be sufficient to capture and predict how learning will unfold, as some of the early learning literature in this field might have suggested. In fact, we appreciate the comment by an anonymous reviewer who pointed out that mind and personality, specific skills, or intelligence level, for instance, might influence how people learn either to continue taking the initiative or to generate better initiatives over time.

²For robustness (all results are available from the first author upon request), we tested for a potentially quadratic effect of initiators' success experience on repeat initiative taking, which we did not, however, discover. Moreover, we reoperationalized repeat initiative taking using different time windows (i.e., idea submission after two or six years following a prior submission) and found again that our results held. Additionally, we investigated whether there is a structural difference between employees who are very active in proposing ideas and those who propose very few ideas and are not very productive. We calculated our proxy measure productivity by $(n - 1)/(t_2 - t_1 + 1)$, where n is the total number of ideas a person initiated, t_1 the time (in months) of initiating the very first idea, and t_2 the time (in months) the very last idea was generated. We added one month to handle cases in which two ideas were submitted in the same month. Then, we ran analyses on samples excluding people whose degree of productivity was 0.5, 1, or 1.5 above the average. We also ran a model where we focused only on the first three ideas of an initiator, plus one in which, in addition to including only the first three ideas of an initiator, we also excluded initiators with an above-average (0.30) productivity score. All the analyses confirm that an initiator's prior experience of failure is significantly related to an increased submission of subsequent ideas.

³In different robustness checks, we also added the squared term for *initiators' failure experience*. The squared term was significant where we excluded from the data set people who were 0.5, 1, or 1.5 times above the average in terms of productivity (see endnote 2 for further details on the operationalization of productivity). Because of these restrictions, the inflection point moved slightly. For the data set where we excluded people with a degree of productivity 1.5 above the average, the inflection point was at 21 failed experiences. The same inflection point was found for an analysis where we excluded above-average productive people. Using a data set comprising only initiators with less than 0.5 below the sample average for productivity, we found an inflection point at 9 failed experiences. In data sets where we focused only on the first three ideas, we still found a significant linear effect but no longer found a significant curvilinear effect. Together, the additional analyses confirm that there is an inflection point for every group, just that the actual number may vary.

⁴Again, we checked for robustness (results are available from the first author upon request). First, we did not encounter any quadratic relationships between the initiators' prior success experience or contributors' prior success experience and initiative success. Second, using a different operationalization for this dependent variable also confirmed our earlier findings. Specifically, we regressed on initiative lifetime since the length of an initiative process might be an indication of how far an idea had made it in the development and hence might also be a sign of success. Finally, we ran different models excluding people whose degree of productivity (see endnote 2 for further

details on the operationalization of productivity) was 0.5, 1, or 1.5 above the average, where we included only the first few ideas of initiators, and where we additionally excluded initiators with a productivity degree above the average. Overall, the results confirm the general tendencies observed with the full data of data set B. It is noteworthy that a model including productivity as an additional control variable shows that this variable did not turn out to have a significant influence on initiative success. However, initiators' and contributors' prior success experience remained significant predictors of initiative success. One could argue that because of a higher productivity, idea originators produce more behavior, which then leads to more feedback, which then might lead to higher performance. However, in our data this is not confirmed, meaning that just being active and submitting many ideas does not matter for initiative success. Indeed, highly productive people either might not be interested in learning from prior idea outcomes or might not be able to transfer the lessons of specific idea-related feedback to a new idea. To further validate this finding, we also conducted additional analyses with a proxy for feedback. In Enco's innovation management program, comments by other participants and the formal feedback of the innovation group are archived. By counting the number of comments recorded for every idea, we created a proxy for feedback intensity for an idea. We ran negative binomial regression analyses with the count variable *feedback* as the dependent variable. The results show that the success or failure of an idea is not significantly related to receiving more or less feedback. Moreover, taking prior idea feedback as an independent variable and initiative success as a dependent variable, the coefficient of feedback is very small and not significant ($\beta = -0.001$, nonsignificant). Including this feedback proxy did not significantly change the other results reported in the paper. Taken together, this supports the notion that it is difficult to use specific feedback on a previous idea in order to help the development of a new and different one. Moreover, it shows that the innovation management program team treated every idea in a similar way in terms of the feedback provided, whether the idea itself was successful or not. Interviews with initiators and Enco's innovation managers confirm that every initiative is taken seriously, no matter how often an initiator approaches the review committee or how low-key the initiative seems to be at the beginning. The review committee always wants to give constructive feedback to the initiators, and many valued this, as indicated by some statements included in Table 1. For instance, one interviewee said, "I expect that the people who evaluate my idea have a much broader overview of what's worthwhile to pursue. I've got a lot of faith in the process and think there's probably some good reason behind a rejection."

⁵We appreciate the advice from an anonymous reviewer to focus on the potentially contingent effect of initiative type (i.e., incremental versus radical initiatives).

⁶Specifically, we tested whether two aspects of radicalness, which can be identified in our data, had a moderating effect on the relationship between failure or success experiences and repeat initiative taking. These aspects of idea radicalness concern what degree of confidentiality an idea is given within Enco and how similar it seems when compared with earlier ones by the same initiator. The analyses, however, reveal no clear and consistent pattern. The variable *initiative confidentiality* had no significant effect, whereas *similarity to previous*

initiatives had, at best, a very marginal moderating influence on the relationship between initiators' failure experiences and repeat initiative taking. Moreover, and as expected, the influence of success experiences on repeat initiative taking was not activated by the two indicators for initiative radicalness. The latter finding can be expected because if positive feedback has a reinforcing effect for behavior and motivation, it should hold, regardless of the nature of the activity itself (see Audia and Goncalo 2007).

References

- Adler PS, Kwon S (2002) Social capital: Prospects for a new concept. *Acad. Management Rev.* 27(1):17–40.
- Amabile TM, Barsade SG, Mueller JS, Staw BM (2005) Affect and creativity at work. *Admin. Sci. Quart.* 50(3):367–403.
- Argote L, Miron-Spektor E (2011) Organizational learning: From experience to knowledge. *Organ. Sci.* 22(5):1123–1137.
- Argote L, McEvily B, Reagans R (2003) Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Sci.* 49(4):571–582.
- Audia PG, Goncalo JA (2007) Past success and creativity over time: A study of inventors in the hard disk drive industry. *Management Sci.* 53(1):1–15.
- Baer M (2012) Putting creativity to work: The implementation of creative ideas in organizations. *Acad. Management J.* 55(5):1102–1119.
- Baer M, Frese M (2003) Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance. *J. Organ. Behav.* 24(1):45–68.
- Brunstein JC, Gollwitzer PM (1996) Effects of failure on subsequent performance: The importance of self-defining goals. *J. Personality Soc. Psych.* 70(2):395–407.
- Burgelman RA (1983) Corporate entrepreneurship and strategic management: Insights from a process study. *Management Sci.* 29(12):1349–1364.
- Burgelman RA (1988) Strategy making as a social learning process: The case of internal corporate venturing. *Interfaces* 18(3):74–85.
- Cameron AC, Trivedi PK (2009) *Microeconometrics Using Stata* (Stata Press, College Station, TX).
- Carver CS, Scheier MF (1998) *On the Self-Regulation of Behavior* (Cambridge University Press, Cambridge, UK).
- Carver CS, Blaney PH, Scheier MF (1979) Reassertion and giving up: The interactive role of self-directed attention and outcome expectancy. *J. Personality Soc. Psych.* 37(10):1859–1870.
- Catmull E (2008) How Pixar fosters collective creativity. *Harvard Bus. Rev.* 86(9):64–72.
- Cattani G, Ferriani S (2008) A core/periphery perspective on individual creative performance: Social networks and cinematic achievements in the Hollywood film industry. *Organ. Sci.* 19(6):824–844.
- Chandler DE, Kram KE, Yip J (2011) An ecological systems perspective on mentoring at work: A review and future prospects. *Acad. Management Ann.* 5(1):519–570.
- Crant JM (2000) Proactive behavior in organizations. *J. Management* 26(3):435–462.
- De Clercq D, Castañer X, Belausteguigoitia I (2011) Entrepreneurial initiative selling within organizations: Toward a more comprehensive motivational framework. *J. Management Stud.* 48(6):1269–1290.
- Dougherty D, Hardy C (1996) Sustained product innovation in large, mature organizations: Overcoming innovation-to-organization problems. *Acad. Management J.* 39(5):1120–1153.
- Edmondson AC (1999) Psychological safety and learning behavior in work teams. *Admin. Sci. Quart.* 44(2):350–383.
- Edmondson AC, James R, Roloff KS (2007) Three perspectives on team learning. *Acad. Management Ann.* 1(1):269–314.
- Ellis S, Davidi I (2005) After-event reviews: Drawing lessons from successful and failed experience. *J. Appl. Psych.* 90(5):857–871.
- Ellis S, Mendel R, Nir M (2006) Learning from successful and failed experience: The moderating role of kind of after-event review. *J. Appl. Psych.* 91(3):669–680.
- Fairbank JF, Williams SD (2001) Motivating creativity and enhancing innovation through employee suggestion system technology. *Creativity Innovation Management* 10(2):68–74.
- Frese M (1995) Error management in training: Conceptual and empirical results. Zucchermaglio C, Bagnara S, Stucky SU, eds. *Organizational Learning and Technological Change* (Springer, Berlin), 112–124.
- Frese M, Fay D (2001) Personal initiative: An active performance concept for work in the 21st century. *Res. Organ. Behav.* 23:133–187.
- Frese M, Teng E, Wijnen CJD (1999) Helping to improve suggestion systems: Predictors of making suggestions in companies. *J. Organ. Behav.* 20(7):1139–1155.
- Frese M, Kring W, Soose A, Zempel J (1996) Personal initiative at work: Differences between East and West Germany. *Acad. Management J.* 39(1):37–63.
- Gersick CJ, Hackman JR (1990) Habitual routines in task-performing groups. *Organ. Behav. Human Decision Processes* 47(1):65–97.
- 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. *Organ. Behav. Human Decision Processes* 111(2):102–115.
- Gong Y, Cheung S, Wang M, Huang J (2012) Unfolding the proactive process for creativity: Integration of the employee proactivity, information exchange, and psychological safety perspectives. *J. Management* 38(5):1611–1633.
- Grant AM (2012) Giving time, time after time: Work design and sustained employee participation in corporate volunteering. *Acad. Management Rev.* 37(4):589–615.
- Grant AM, Ashford SJ (2008) The dynamics of proactivity at work. *Res. Organ. Behav.* 28:3–34.
- Grant AM, Parker SK (2009) Redesigning work design theories: The rise of relational and proactive perspectives. *Acad. Management Ann.* 3(1):317–375.
- Greenberg J, Baron RA (2002) *Behavior in Organizations: Understanding and Managing the Human Side of Work* (Prentice-Hall, Upper Saddle River, NJ).
- Greve HR (2003) A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. *Acad. Management J.* 46(6):685–702.
- Haggard DL, Dougherty TW, Turban DB, Wilbanks JE (2011) Who is a mentor? A review of evolving definitions and implications for research. *J. Management* 37(1):280–304.
- Hallen BL (2008) The causes and consequences of the initial network positions of new organizations: From whom do entrepreneurs receive investments? *Admin. Sci. Quart.* 53(4):685–718.
- Hamel G, Getz G (2004) Funding growth in an age of austerity. *Harvard Bus. Rev.* 82(7):76–84.

- Hammond MM, Farr JL (2011) The role of errors in the creative and innovative process. Hofmann DA, Frese M, eds. *Errors in Organizations* (Routledge Academic, New York), 67–96.
- Hargadon AB, Bechky BA (2006) When collections of creatives become creative collectives: A field study of problem solving at work. *Organ. Sci.* 17(4):484–500.
- Hilbe JM (2009) *Logistic Regression Models* (Chapman & Hall/CRC Press, Boca Raton, FL).
- Hoetker G (2007) The use of logit and probit models in strategic management research: Critical issues. *Strategic Management J.* 28(4):331–343.
- Howell JM, Higgins CA (1990) Champions of technological innovation. *Admin. Sci. Quart.* 35(2):317–341.
- Jones GR, Butler JE (1992) Managing internal corporate entrepreneurship: An agency theory perspective. *J. Management* 18(4):733–749.
- Katz-Navon T, Naveh E, Stern Z (2009) Active learning: When is more better? The case of resident physicians' medical errors. *J. Appl. Psych.* 94(5):1200–1209.
- Keith N, Frese M (2008) Effectiveness of error management training: A meta-analysis. *J. Appl. Psych.* 93(1):59–69.
- Kijkuit B, Van den Ende J (2010) With a little help from our colleagues. A longitudinal study of social networks for innovation. *Organ. Stud.* 31(4):451–479.
- Kim J-Y, Kim J-Y, Miner AS (2009) Organizational learning from extreme performance experience: The impact of success and recovery experience. *Organ. Sci.* 20(6):958–978.
- Lampel J, Shamsie J, Shapira Z (2009) Experiencing the improbable: Rare events and organizational learning. *Organ. Sci.* 20(5):835–845.
- Levinthal DA, March JG (1993) The myopia of learning. *Strategic Management J.* 14(8):95–112.
- Levitt B, March JG (1988) Organizational learning. *Annual Rev. Psych.* 14:319–340.
- Locke EA, Latham GP (1990) *A Theory of Goal Setting and Task Performance* (Prentice-Hall, Englewood Cliffs, NJ).
- Long JS, Freese J (2006) *Regression Models for Categorical Dependent Variables Using Stata* (Stata Press, College Station, TX).
- Madsen PM, Desai V (2010) Failing to learn? The effects of failure and success on organizational learning in the global orbital launch vehicle industry. *Acad. Management J.* 53(3):451–476.
- McEvily B, Jaffee J, Tortoriello M (2012) Not all bridging ties are equal: Network imprinting and firm growth in the Nashville legal industry, 1933–1978. *Organ. Sci.* 23(2):547–563.
- McGrath RG (1999) Falling forward: Real options reasoning and entrepreneurial failure. *Acad. Management Rev.* 24(1):13–30.
- McGrath RG (2001) Exploratory learning, innovative capacity and managerial oversight. *Acad. Management J.* 44(1):118–131.
- Mikulincer MM (1989) Cognitive interference and learned helplessness: The effects of off-task cognitions on performance following unsolvable problems. *J. Personality Soc. Psych.* 57(1):129–135.
- Miller GA, Galanter E, Pribram KH (1960) *Plans and the Structure of Behavior* (Holt, Rinehart and Winston, New York).
- Milliken FJ, Morrison EW, Hewlin PF (2003) An exploratory study of employee silence: Issues that employees don't communicate upward and why. *J. Management Stud.* 40(6):1453–1476.
- Mintzberg H (1979) An emerging strategy of "direct" research. *Admin. Sci. Quart.* 24(4):582–589.
- Miron E, Erez M, Naveh E (2004) Do personal characteristics and cultural values that promote innovation, quality, and efficiency compete or complement each other? *J. Organ. Behav.* 25(2):175–199.
- Morrison EW, Phelps CC (1999) Taking charge at work: Extra-role efforts to initiate workplace change. *Acad. Management J.* 42(4):403–419.
- Mumford MD, Gustafson SB (1988) Creativity syndrome: Integration, application, and innovation. *Psych. Bull.* 103(1):27–43.
- Norton EC, Wang H, Ai C (2004) Computing interaction effects and standard errors in logit and probit models. *Stata J.* 4(2):154–167.
- Parker SK, Collins CG (2010) Taking stock: Integrating and differentiating multiple proactive behaviors. *J. Management* 36(3):633–662.
- Parker SK, Bindl UK, Strauss K (2010) Making things happen: A model of proactive motivation. *J. Management* 36(4):827–856.
- Parker SK, Williams HM, Turner N (2006) Modeling the antecedents of proactive behavior at work. *J. Appl. Psych.* 91(3):636–652.
- Podsakoff PM, MacKenzie SB, Paine JB, Bachrach DG (2000) Organizational citizenship behaviors: A critical review of the theoretical and empirical literature and suggestions for future research. *J. Management* 26(3):513–563.
- Schwab A, Miner AS (2008) Learning in hybrid-project systems: The effects of project performance on repeated collaboration. *Acad. Management J.* 51(6):1117–1149.
- Shapira Z (1976) Expectancy determinants of intrinsically motivated behavior. *J. Personality Soc. Psych.* 34(6):1235–1244.
- Shea CM, Howell JM (2000) Efficacy-performance spirals: An empirical test. *J. Management* 26(4):791–812.
- Shepherd DA (2003) Learning from business failure: Propositions of grief recovery for the self-employed. *Acad. Management Rev.* 28(2):318–328.
- Shepherd DA, Cardon MS (2009) Negative emotional reactions to project failure and the self-compassion to learn from the experience. *J. Management Stud.* 46(6):923–949.
- Sitkin SB (1992) Learning through failure: The strategy of small losses. Staw BM, Cummings LL, eds. *Research in Organizational Behavior*, Vol. 14 (JAI Press, Greenwich, CT), 231–266.
- Skilton PF, Dooley K (2010) The effects of repeat collaboration on creative abrasion. *Acad. Management Rev.* 35(1):118–134.
- Sribney W (2007) Chi-squared test for models estimated with robust standard errors. Accessed September 28, 2010, <http://www.stata.com/support/faqs/stat/chi2.html>.
- Staddon JER, Cerutti DT (2003) Operant conditioning. *Annual Rev. Psych.* 54(1):115–145.
- Thorndike EL (1927) The law of effect. *Amer. J. Psych.* 39(1/4):212–222.
- Thorndike EL (1933) A proof of the law of effect. *Science* 77(1989):173–175.
- Ucbasaran D, Westhead P, Wright M (2009) The extent and nature of opportunity identification by experienced entrepreneurs. *J. Bus. Venturing* 24(2):99–115.
- Unsworth K (2001) Unpacking creativity. *Acad. Management Rev.* 26(2):289–297.
- Van de Ven AH (1986) Central problems in the management of innovation. *Management Sci.* 32(5):590–607.
- Van de Ven AH, Polley D (1992) Learning while innovating. *Organ. Sci.* 3(1):92–116.

- VandeWalle D, Cummings LL (1997) A test of the influence of goal orientation on the feedback-seeking process. *J. Appl. Psych.* 82(3):390–400.
- van Dyck C, Frese M, Baer M, Sonnentag S (2005) Organizational error management culture and its impact on performance: A two-study replication. *J. Appl. Psych.* 90(6):1228–1240.
- Wright TP (1936) Factors affecting the cost of airplanes. *J. Aeronautical Sci.* 3(4):122–128.
- Zhou J, George JM (2001) When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Acad. Management J.* 44(4):682–696.

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