Do Intrapreneurs Learn from their Mistakes?
The relationship between Error Orientation and Innovative Work Behavior and the moderating effects of Personality and Self-Efficacy

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Do Intrapreneurs Learn from their Mistakes?
Preface

“Do Intrapreneurs Learn from their Mistakes” is my Master thesis about innovative work behavior and error orientation of employees in Belgium. I have written this thesis with the objective to graduate from my Master in personnel management and industrial psychology at Ghent University. I had the fortune to develop a research question about a subject that I could associate with a personal value of mine, empowering others. It is safe to say that, when I come across the concept of intrapreneurship, I will always pay special attention.

Although as a student I felt well prepared for this assignment by the prior academic trajectory, it is safe to say that I had a lot of personal hurdles to take with this assignment. The thought of writing +50 pages in a scientific language did not appeal to me at all, in contrary to the other interesting challenges we had faced as students. However with the help of a lot of people I feel like I finally have overcome this challenge that, as future psychologist, we have to face. When I was actually busy writing, doing research, collecting and analyzing data, I surprisingly enjoyed the fact that the 5 years of courses that prepared me for doing research, were finally put into practice.

In this journey, I’ve learned an important lesson, and I’ve learned it the hard way. “Do not be too proud to ask for help”. The people that helped me finish this project deserve a special thanks from me. First and foremost, I am very grateful towards my supervisor Prof. Dr. Bart Van De Ven, who gave me a chance to graduate when no one else would. It is very satisfying to work with someone, who can promise you word for word what his contribution will be and live up to that promise. I was very fortunate to receive his pragmatic and efficient guidance. Secondly, I want to thank “the Subway”, my friends, and more specifically, Nick, Joris and Bart. They helped me through this long journey on a personal level with accordingly their pragmatic, empathic and demanding approach. Thirdly, I want to thank my parents, who gave me the opportunity to explore my interests and develop myself in my academic career. Finally, I want to thank everyone who participated in and contributed to this research.
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Abstract

The purpose of this study is to gain more insight into the dynamics of intrapreneurship, the introduction and implementation of a significant innovation for the firm by one or more employees working within an established organisation. Intrapreneurship is of growing importance for organizations to adapt and anticipate to the needs of the market. This study researches intrapreneurship on an individual level by focusing on the relationship between the error orientation of employees and their innovative work behavior and investigating the moderating role of self-efficacy, conscientiousness and openness to experience. Data was collected through a self-report questionnaire with a sample of 195 employees from different companies and educational backgrounds. The hierarchical linear regression showed that error-oriented learning was significantly positively related with innovative work behavior and that this effect was positively moderated by self-efficacy. The analysis also showed a negative interaction effect of openness of experience and error-oriented worry on innovative work behavior. This study contributed to the research field by demonstrating the link between error-oriented learning and innovative work behavior. It also confirmed the scientific value of general self-efficacy in work-related performance measurement. On the other hand, the significant effects of the personality traits were small. Recommendation for future research is to look into the effects of intrinsic factors of the employees in combination with situational factors in the work environment to explain innovative work behavior. In conclusion, organizations can benefit from creating a positive error orientation, like error-oriented learning, with their employees in order to facilitate more innovative behavior.
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Introduction

We live in a time where consumers and businesses are confronted with rapid global changes that are affecting everyone. With a globalized economy and easy accessibility of information, organizations are starting to realize that innovation is key, to not only keep up, but also to anticipate to the needs of the market. Whether an organization focuses on business to business, business to customer, is governmental or non-profit, it needs to adapt and innovate and this needs to go faster and faster. Competitors can rise from everywhere in the world. Even a seemingly non-threatening event, for example an introduction of a game, like Pokémon go, can change human behavior overnight and push organizations to play into it commercially.

Many organizations however do not realize that they do not necessarily need to have a lot of financial resources in order to be innovative. Rather than investing in an expensive research and development department, organizations could unlock the potential that lies within their employees. Intrapreneurship, entrepreneurship within an organization, a concept introduced by Pinchot (1985), or corporate entrepreneurship (Lukes & Stephan, 2017), can be a very effective strategy for organizations to be innovative and competitive. The past two decades, intrapreneurship grew into a separate field of research, linking it to organizational performance, profitability and innovativeness (Baruah & Ward, 2015; Lumpkin & Dess, 1996; Rauch & Frese, 2007; Zahra, 1991). Large firms like 3M and IBM were among the first organization to invest in intrapreneurship and there is no question in their continuous success. At IBM they found that in a large company the organizational dynamics, like politics or misalignment of incentives, can stand in the way of great innovation. They developed a platform for every employee, no matter what department they are from, to pitch ideas in front of the senior staff and get funding, resources or expertise to help develop and implement valuable ideas. The outcome was that this helped with employee engagement and fosters innovation (Intrapreneurship@IBM-Craig Rhinehart, 2015). Intrapreneurship has now been recognized as being equally important as traditional entrepreneurship (Adachi & Hisada, 2017).

It is interesting to look into this research field, not only because of the positive outcomes for organizations, but also to get more insight in antecedents for intrapreneurship and innovative work behavior. There has been some valuable research towards the
antecedents of intrapreneurship, linking it to both individual and organizational aspects (Alpkan, Bulut, Gunday, Ulusoy, & Kilic, 2010; Lukes & Stephan, 2017). Literature covered the influence of risk tolerance and motivation, and organizational aspects like management style and support (Alpkan et al., 2010), resource availability (Rigtering & Weitzel, 2013), transparent communication and easy exchange of ideas (Zahra, 1991), the openness to change, organizational structure and organizational learning (Haase, Franco, & Felix, 2016; Lumpkin & Dess, 1996). This study however, tries to find answers for what organizations can do to foster intrapreneurship within their employees. The question is how innovative work behavior can be stimulated.

In the past decade, there has been a considerable amount of research looking into the effects of error handling, error orientation and a company’s error management culture. Both on organizational and individual level, there has been evidence that having a positive attitude towards errors, rather than avoiding or covering errors, has positive work-related effects. Van Dyck et al. (2015) found that an error management culture within an organization can have a positive effect on long-term performance. Having a positive error orientation as an individual has a positive influence on long term performance as well (Arenas, Tabernero, & Briones, 2006). An important practical implication of these findings is that error management training, a training that learns to deal with errors positively, can impact employees to incorporate that positive attitude (Keith & Frese, 2008).

Up until now there has been little research about the relationship between error handling and innovative work behavior. We argue that making errors is a part of innovative behavior. For instance, when people are brainstorming and generating ideas in a group, they are asked to only start criticizing and eliminating bad ideas after the brainstorming session. This is because if people are going to focus on avoiding saying bad ideas, they are less likely to inspire ideas with others. In the same way, we can argue that people who are going to focus on avoiding errors, are less likely to perform innovative behavior. If there is a relationship between error handling and innovative work behavior, organizations can play into that by creating an error management culture and for example organize error management training for their employees.
The objective of this study is to link the fields of intrapreneurship and error orientation. However, there can be a lot of underlying psychological mechanism that can influence the relation between error orientation and innovative work behavior. For instance, locus of control, personal belief in success or intrinsic motivation to name a few. The purpose is to assess these constructs on an individual level. In this study, two constructs of personality into account. The Five factor model, or Big Five, has been considered to be one of the most valuable personality models. Apart from two traits of the Big Five, openness to experience and conscientiousness, also self-efficacy, Bandura’s (1977) widely research construct of his social cognition theory into account, is taken into account. “Self-efficacy is an individual’s belief in his or her capacity to master the cognitive, motivational, and behavioral resources required to perform in a given situation” (Scherbaum, Cohen-Charash, & Kern, 2006, p.1047). Research suggests that self-efficacy has an effect on innovative performance. Chen, Li & Leung (2016) found that people with different views about themselves differ in the way they look for information. This can also mean that the way people believe how they perform on a task could have an influence on their innovative work behavior. In this study, we are looking into the relationship between error orientation and innovative work behavior. The question is if employees can perform more innovative work behavior, if they see errors as an opportunity to learn. Do employees display less innovative work behavior when they see errors as items that are worrying and frustrating or maybe even as items that employees need to be cover up? Does the belief in the ability of succeeding in tasks make that effect bigger or does personality play a key role?

**Theoretical Background and Hypotheses**

**Intrapreneurship.**

The term intrapreneuring was introduced by Pinchot in 1985. (B. Antoncic & Hisrich, 2001; Davis, 1999; Haase et al., 2016). Over time researchers used terms like corporate entrepreneurship, internal corporate entrepreneurship, entrepreneurial orientation and created somewhat confusion to describe intrapreneurship. When we started to use the word “intrapreneur” we viewed it as a person within a large corporation. Someone who takes an idea into a product through assertive risk-taking and innovation (Baruah & Ward, 2015). However, we soon came to find that intrapreneurs are not only part of large
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corporations but also of SME’s and smaller companies (Antoncic & Hisrich, 2001). A simple and very inclusive definition is: “intrapreneurship is entrepreneurship within an existing organization” (Antoncic & Hisrich, 2001; Lukes & Stephan, 2017; Menzel, Aaltio, & Uljijn, 2007). This means that intrapreneurship is the creation of new activities within an existing organization or the innovation through strategic renewal (Wakkee et al., 2010). Intrapreneurship has also been defined as the process where individuals search for new opportunities without limitations of resources (Hornsby, Kuratko, & Zahra, 2002). This definition is somewhat questionable because creativity and innovation sometimes get stimulated by limitations and lack of resources. It can help a person to think of more efficient ways to reach goals. A start-up does not usually have the time, money or manpower to deliver, but because of the pressure they find innovative ways to be able to deliver. Usually doubling the manpower does not double the innovative behavior. There are researchers that question whether availability or limitations of resources has an impact on intrapreneurship (Antoncic & Hisrich, 2001; Stull, 2005).

Parker on the other hand argued that intrapreneurship is the process of creating a new business venture for the employer and that it means the same as corporate entrepreneurship (Parker, 2011). However when we look into literature, we notice that corporate entrepreneurship and intrapreneurship are associated but the concepts are not studied in similar ways. There is a distinctive use of both terms. Corporate entrepreneurship and entrepreneurial orientation usually implies a strategic renewal and is perceived in a top-down context, from an organizational perspective. Corporate entrepreneurship usually is created and monitored by the organization, while on the other hand intrapreneurship is perceived as a bottom-up process used for describing spontaneous behaviors by individual employees that brings innovation for several activities of the organization (Valsania, Moriano, & Molero, 2016; Hornsby et al., 2002; Rigtering & Weitzel, 2013).

There are many related concepts with intrapreneurship and several definitions used to describe intrapreneurship. This tells us that a lot of different researchers with different academic backgrounds are interested in the subject because of the many aspects of the concept and the relevance of the subject. We want to use a definition that is in line with previous research and describes innovative behaviors of employees that can lead to
a wide range of new or improved activities, services, opportunities, processes or products for the organization. We will use a relatively exclusive definition that highlights the importance of not only the generation, but also the implementation of the idea or activities as part of intrapreneurship. Intrapreneurship is

“the introduction and implementation of a significant innovation for the firm by one or more employees working within an established organisation.” (Rigtering & Weitzel, 2013, p. 341)

According to Rigtering et al. (2013) only the creation is not enough to talk about intrapreneurship, the new activities or strategic renewal has to be implemented within the organisation as well. For a better understanding, intrapreneurship can be grouped in four kinds of activities (Antonic & Antoncic, 2011). 1) New ventures in the market that are not linked with the current activities of the organisation. 2) The creation of new opportunities with existing products or markets, or the creation of new related products. 3) The innovation of the product, service, process or technology 4) The renewal of the organisation or its core elements.

As previously discussed, intrapreneurial behavior has been researched on two different levels. On the one hand, on an organisational level. How can an organisation create a framework for employees to create new activities and initiatives and show innovative work behavior? On the other hand intrapreneurial behavior can be researched on the individual level. What kind of characteristics does an intrapreneur have and how does an organization facilitate innovative working behavior with the employee? In the study we are interested in the effects that individuals endure.

**Is intrapreneurship a part of entrepreneurship?**

Entrepreneurship is without a doubt closely related to intrapreneurship and there has been research that compares intrapreneurial behaviors and entrepreneurial behaviors. In general the characteristics of intrapreneurs and entrepeneurs have an overlap (Moriano & Molero, 2014; Wakkee et al., 2010). Originally researchers thought they mainly differ in recognizing market opportunities or in the intrinsic motivation to start a venture outside the organization (Urbano, Alvarez, & Turro). Douglas and Fitzsimmons (2013) researched the distinction between intrapreneurial behaviors and entrepreneurial behaviors.
They researched whether people who value ownership, autonomous decision making, a bigger income and who are not afraid of taking risks, are more likely to start a venture outside the organization (Douglas & Fitzsimmons, 2013; Martiarena, 2013). First of all an entrepreneur chooses the environment he works in, while an intrapreneur has to start from within the environment of the organization (Smith & Rees, 2016). One of the differences Douglas and Fitzsimmons (2013) found was the attitude towards psychological preferences of a lot of the predicted entrepreneurial intentions in comparison to intrapreneurial intentions. To entrepreneur outside the own organization people are in a more vulnerable position to risks and insecurities, for example failure can lead to bankruptcy, on the other hand for intrapreneurs, the company endures the outcomes of the risks they take (Douglas & Fitzsimmons, 2013; Smith & Rees, 2016). One of the reasons that would make entrepreneurs to take those risks is that they have a need for bigger financial rewards which they can not obtain within the organisation (Douglas & Fitzsimmons, 2013). As an entrepreneur, a person can have a majority of shares of the venture and are more probable to profit greatly from the innovation. Douglas and Fitzsimmons (2013) found that independence and ownership is positive related towards entrepreneurial intentions and not towards intrapreneurial intentions. Research suggests that intrapreneurs have to obey more traditional corporate procedures and politics, like reporting to superiors, and entrepreneurs usually like to go against traditional corporate behaviors and prefer to have autonomy in their decision making (Davis, 1999; Douglas & Fitzsimmons, 2013).

On the other hand in an organisation intrapreneurs have access to more resources for an idea which they might not have as an individual entrepreneur. If someone values stability and job retention, that person will be less likely to start a new venture and take professional risks outside of the organisation. Douglas and Fitzsimmons (2013) also found similarities between intrapreneurs and entrepreneurs. For instance having confidence in having success in own ventures, also known as entrepreneurial self-efficacy, predicted intrapreneurship and entrepreneurship. When an employee feels like he or she is capable to do entrepreneurial activities, then there is more chance that he or she would like to make his or hers aspirations a reality. They did not find support for the need for the bigger need for income of entrepreneurs or that entrepreneurs have higher tolerance for risks (Douglas & Fitzsimmons, 2013).
Intrapreneurial orientation has three core elements. Risk taking, innovation and proactivity (Felicio, Rodrigues, & Caldeirinha, 2012; Lumpkin & Dess, 1996; Moriano & Molero, 2014; Wakkee et al., 2010). When we talk about innovation, we talk about the generation, creation and the use of ideas. An intrapreneur needs proactivity to anticipate future needs and changes to persuade people to implement his ideas. Risk taking is part of intrapreneurial behavior because an intrapreneur does not know what the result will be (Moriano & Molero, 2014). An intrapreneur is someone who dares to think differently, swims into the current and challenges the status quo. The risk for an intrapreneur is that these are attitudes co-workers and managers do not always take in gratitude. Change takes time and effort and resistance to change is something that intrapreneurs and innovators will always be confronted with. There are however some questions regarding risk taking. In a study by Rigtering en Weitzel (2013) about the effect of work environment and employee behavior on intrapreneurship, risk taking is a variable that is not supported. This can be explained by the fact that probably not every innovation entails a kind of risk. The kind of innovative behavior that is needed in order to achieve innovation, depends on the characteristics of the organization. If an organization is very formal and bureaucratic, with outlined job descriptions and responsibilities, an intrapreneur can view it as a risk to push an innovative project through (with potentially risking the credit they have built up within the company), but in flexible organizations employees do not perceive performing innovatively as a risk. Maybe risk taking is not an essential element but when we look into the aspect of the working environment, there is more potential for intrapreneurial behavior if there is tolerance for risk taking (Alpkan et al., 2010; Goodale et al., 2011; Rigtering et al.; Kuratko et al., 2014). The environment, organizational setting and culture have been found to play a decisive role for intrapreneurs. For instance, Smith and Rees (2016) concluded that managerial support in general is needed for innovation to happen and autonomy needs to be given to employees who want to take new initiatives. In conclusion, even though the processes an entrepreneur and an intrapreneur go through, they have different values and incentives to bring innovation. There is mixed support for whether or not an intrapreneur has to be able to take risks, but it is important to take note that an intrapreneur is going to need support from the organization to perform innovative behavior. In the current study, we will research whether the orientation an employee has towards errors has an influence on the performance of innovative behavior.
Frese & Keith (2015) explain the relationship between errors and risks. When errors are usually produced by the individual, risks lie in the interaction with the environment. Perhaps the ambiguity about the role of risk taking behavior can be explained by the error orientation employees have. Employees who worry about errors, might perceive innovative work behavior as risky because of the amount of errors this can entail. On the other hand, employees with a positive error orientation, can have a different attitude towards innovative behavior because if innovative behavior induces a lot of errors, they can still focus on the positive aspects of innovative work behavior.

Innovative work behavior.

Performance has always been an important measure in industrial and organizational psychology, on organizational level and on employee level. Individual job performance is a multidimensional concept. Researchers can measure task-related performance, organizational citizen behavior, counterproductive behavior, … (Harari, Reaves, & Viswesvaran, 2016). While previous research focused on characteristics of intrapreneurs, recent research has focused on the collection of intrapreneurial behaviors or innovative work behavior. Rather than limiting the scope by only observing intrapreneurs, referring to specific employees who initiates innovation projects themselves (Rigtering & Weitzel, 2013), we want to observe all innovative work behavior, including extra role behaviors that are not prescribed and exceed expectations set by the organization (Janssen, 2000). In this study we are going to focus on innovative work behavior.

“innovative work behavior is the intentional creation, introduction and application of new ideas within a work role, group or organization, in order to benefit role performance, the group, or the organization” (Janssen, 2000).

innovative behavior consists of idea generation (creating new ideas for difficult issues), idea promotion (mobilizing support for innovative ideas) and idea implementation (transforming innovative ideas into useful application) (Chen et al., 2016; Lukes & Stephan, 2017). innovative work behavior is essential for organizations to become more effective. With employees bringing creativity and innovation, the organization can benefit from new products or optimization of products, processes or organizational structures.
innovative work behavior can also benefit the employees or groups of employees by increasing job satisfaction or interpersonal communication (Janssen, 2000). When we define creativity, we define it as idea generation while innovation implies idea generation and implementation (Harari et al., 2016). There are two implications for this dimension that explain the covariance with other individual job performance dimensions, the halo effect and the general job performance overlap (Harari et al., 2016). Halo effect refers to the spillover of attributions. For instance, when people observe someone being friendly, people might quote that person higher on other positive attributes that they have not observed, for example empathy, though friendliness and empathy are both positive but different attributes. General job performance overlap refers to the fact that if someone scores high on job performance, they will probably score high on several other job-related performance dimensions, like task performance or organizational citizen behavior.

Innovation has evolved from an interesting occurrence into a strategic mean to generate organisational success. Researchers are focussing on intrapreneurial initiatives because there is evidence that organizations benefit in terms of profitability and innovativeness, strategic renewal and performance and international success (Baruah & Ward, 2015). Firms which value intrapreneurial activities and orientations are more likely to have higher growth and profitability (Antoncic & Antoncic, 2011; Baruah & Ward, 2015). Alpkan et al. (2010) researched whether organizational support had impact on innovative performance. They found that intrapreneurs’ willingness to take risk and the space they got from management to take risks and make mistakes, had a significant impact on innovative performance. Rigttering et al. (2013) found that risk taking behavior does not apply for every kind of situation. They argued that it depends on organizational structure because there is more resistance towards innovation in bureaucratic organizations. Apart from organizational structure, they also found that time allocation plays a role for intrapreneurs. Intrapreneurs need a level of autonomy to invest their working time in innovative projects. On top of that financial support, an aspect that has been disputed to be a facilitator of intrapreneurial behavior, does prove its significance in the idea implementation phase. Because organizational support is important for an employee to perform innovative behavior, we are interested in the following. We are interested in the attitudes of an employee towards his own capabilities and in the attitudes towards the
making of errors. More importantly, we are interested in the influence of these attitudes on innovative work behavior.

**Error orientation.**

Every employee and every organization can and will make errors. Errors are important issues in organizations. It can be the cause of stress, accidents and performance problems (Rybowiak, Garst, Frese, & Batinic, 1999). Research has shown that people differ in the attitude they have towards making errors. You can look at errors in a work-related context positively and negatively. Some people view making errors as failures and think that the best way to cope with errors is to prevent errors as much as possible and not be found making them. This view stems from the belief that errors have mainly negative consequences. Errors can cause frustration for the person that makes errors and for his colleagues because correcting errors can take up valuable time (Keith & Frese, 2008). On the other hand there are employees who handle errors completely differently. Frese and Keith (2015) argue that making errors are unavoidable. Error orientation is the perspective and behaviors people have towards concerning errors (Schell, 2012). Everyone makes errors all the time, how we deal with them can make a difference in the outcome. In error handling research we make an important distinction between errors and the negative consequences they can have (Van Dyck, 2009). Although organizations and employees can benefit from focussing on prevention of errors, the error prevention strategy, employees can try to benefit from an error management strategy instead, by looking at errors as learning opportunities and seeing how they can limit the negative consequences and boost the positive outcomes of errors (Frese & Keith, 2015; Van Dyck, 2009; Van Dyck, Frese, Baer, & Sonnentag, 2005). After all, the people who are making the error are probably the first ones who can observe the error and immediately start to deal with the negative consequences (Schell, 2012). A lot of bureaucratic organizations tend to try to prevent making errors as much as possible with routinization and quality checks, which may have an effect on the amount of errors that are made. The risk with this strategy however is that errors can have a bigger negative impact because they are less expected. On the contrary, entrepreneurial organizations are usually more prone to have an error management approach, that, with openly discussing errors, will induce more individual and organizational learning (Rybowiak et al., 1999).
Errors occur in so many shapes or forms. When we study error orientation, we are taking action errors into account. Action errors are defined as “unintended deviations from plans, goals, or adequate feedback processing or incorrect actions resulting from lack of knowledge” (Frese & Keith, 2015, p. 21.2). According to Frese & Keith (2015), action errors are different from inefficiencies, violations, failures and risks. Inefficiencies usually obtain their goal with a detour (Van Dyck et al., 2005). For example, if the goal is to go to Moscow from Brussels as quickly as possible, an inefficiency could be that instead of flying, people take a car and waste valuable time. Violations on the other hand are usually conscious, intended actions that break a rule in order to achieve a more important goal or action, for instance breaking an entry in a burning house to save those inside (Frese & Keith, 2015; Van Dyck, 2009). Failure occurs when there are negative outcomes for the organization. Usually it is caused by a combination of different kinds of errors, different levels of risks, violations and inefficiencies. Errors do not necessarily lead to failure (Frese & Keith, 2015). For instance a person can make several errors in a football game but as long the errors did not occur in a high risk zone, the player or a team mate can correct the error and win the game. Finally a risk is different from error because risks are external and play a role in the interaction with the individual, while errors are produced by the individual itself (Frese & Keith, 2015).

Frese (1991) promotes an error management strategy as an alternative to handle errors for the error prevention strategy people usually exercise. Error management is an error handling strategy or error orientation that starts when the error has taken place that reduces the impact of the negative consequences of errors, or that limits the damage the error has caused and uses an error as a learning opportunity (Kruse-Weber & Parncutt, 2014; Van Dyck et al., 2005). This strategy originates from the belief that errors are part of human nature (Van Dyck et al., 2005). Error prevention on the other hand is an error handling strategy where certain actions are avoided or even blocked to reduce the chance of errors happening (Frese & Keith, 2015). People who use this strategy tend to have a zero tolerance for errors and limit their freedom to act by avoiding behaviors that can possibly induce errors. They tend to have less abilities to cope with errors, have more strain because of errors and do not communicate about detecting errors. By exercising error management, people can use a wider range of actions, some might lead to errors,
but an employee can benefit from possible positive outcomes like innovation, learning and even better performance (Frese & Keith, 2015; Van Dyck et al., 2005). People who use an error management strategy are better prepared for errors, they have routines to cope with errors and to do damage control. They communicate about errors and help dealing with errors which helps with learning from these errors in the future (Frese & Keith, 2015; Van Dyck et al., 2005). In organizations where they encourage employees to learn from errors, errors provide feedback that contain important information about how to, or how not to, obtain their goal (Van Dyck et al., 2005).

Building on this perspective on error handling or error orientation, Schell (2012) argued that errors lead to a new situation where the employee can not focus on the task itself, but first has to pursue the goal of managing the consequences that the error has created. With this premise, error orientation theory should be parallel to what we find in the goal orientation literature. The general consensus is that people have two approaches towards goals, the mastery orientation and the performance orientation. With a mastery orientation people are focused on personal development and internal satisfaction, while on the other hand people with a performance orientation are more concerned with the outcomes of the goal and the way it is viewed by other people (Elliot & McGregor, 2001; Schell, 2012). When Schell (2012) applies the goal orientation theory in the way people handle errors, he talks about error-oriented covering (EOMS-C), that is linked to the performance approach, where people see errors as weaknesses and actively try to make the errors invisible in order to not be evaluated negatively. On the other hand people can view errors as opportunities to improve there knowledge and skills with the task at hand, they can experience a negative sentiment but that effect is not seen as important as the benefits they can reap. This is called error-oriented learning (EOMS-L), which is linked to the mastery approach in goal orientation (Keith & Frese, 2008; Schell, 2012). Instead of actively dealing with errors, errors can cause negative reactions that can be experienced as stress, anxiety and worrying. As a result, people react more passively by for example ignoring, rationalizing or denying the error in order to reduce the negative feelings they have towards errors. Schell (2012) named this orientation error-oriented worry (EOMS-W). For this study we are going to adopt the terminology as described by Schell (2012).
Error orientation and innovative behavior.

In order to describe the literature linking error orientation and innovative behavior, we have to be aware that the organizational culture concerning errors and the attitude of supervisors and colleagues towards errors have an influence on the expression of these orientations (Schell, 2012). This means that we include literature about error handling and error handling culture to have a clear understanding of aspects that can influence or are influenced by error orientation. For the same reason, we would like to mention again that innovative work behavior is a performance measure that indicates a level of intrapreneurship and creativity.

Looking into the literature describing the relationship between error handling and performance in general, research show that error management has several positive outcomes for an organization. Van Dyck et al. (2005) found that an error management culture leads to a better firm performance. Long term performance was also positively influenced by having a positive error orientation (Arenas, Tabernero, & Briones, 2006). In a study about the effectiveness of error management training, a training that focusses on creating a positive attitude towards errors, Frese & Keith (2008) found that implementing an error management training leads to better performance and also improves learning. In a literary review about error management they discuss that there are less number of errors in an organization with an error prevention strategy, but long-term learning, number of personnel initiatives and long-term performance are higher within organizations that have an error management strategy (Frese & Keith, 2015; Van Dyck et al., 2005). According to this review also the number of innovations are higher within organizations where errors are viewed as positive.

This study is specifically interested in work behavior of employees. Employees are found to be the main drivers behind innovation in organizations (Yesil & Sozbilir, 2013). On top of that, Frese & Keith (2015) showed that errors are usually part of the innovation process. The organizational culture should allow and tolerate failure and errors (Baruah & Ward, 2015). For innovations to happen, people and organizations are bound to make errors. If an employee is trying something new, he can not be too focused on avoiding errors from happening because of the lack of knowledge about the new circumstances. Expecting to competently deal with errors and believing that an employee
can learn from an error, boosts personal initiatives and proactive behavior (Frese & Keith, 2015). With these findings, we believe that having a positive error orientation, like error-oriented learning, as an employee will also have an effect on the performance of innovative work behavior. When people have a positive attitude towards errors and learn from errors, they can gather information about how to deal with new situations. Errors can provide information about how to avoid errors in the future, this is called secondary error prevention (Frese & Keith, 2015). When intrapreneurs are restricted to act or communication is lacking, then intrapreneurial behaviors and innovative work behavior, like putting forwards ideas, will be hindered (Baruah & Ward, 2015). An intrapreneur needs to get support by management or collegues or they will get frustrated and threaten to leave the organisation (Alpkan et al., 2010). There is support for the effects of knowledge sharing on innovative work behavior (Akhavan, Hosseini, Abasi, & Manteghi, 2015), and we would argue that it is not only good practice sharing that can foster innovative work behavior, but also the communication about errors. If people openly communicate about errors, rather than covering up errors, and do not attach negative emotions or punishments to errors, it can encourage people to explore and experiment (Van Dyck et al., 2005). The encouragement an employee gets from exploring and experimenting, can help them to perform innovatively. Employees need support in resources as well as being able to make mistakes. We argue that someone who is positively oriented towards errors, performs better on innovative performance because of the process behind this. When people try to bring innovation it usually implies having to deal with uncertainty in processes and outcomes because of the lack of history and knowledge about the subject. By allowing errors to happen, viewing them as learning opportunities, and being encouraged to detect and communicate about errors, it can help people to express more innovative work behavior. On the other hand, people who are concerned that errors will be viewed as negative and try to cover errors up will not engage in a lot of innovative work behavior. Accordingly, people who experience a lot of negative emotions with errors will not perform innovatively on the job as well.

Hypothesis 1a: error-oriented learning of employees is positively associated with innovative work behavior.
Do Intrapreneurs Learn from their Mistakes?

Hypothesis 1b: error-oriented covering of employees is negatively associated with innovative work behavior.

Hypothesis 1c: error-oriented worry of employees is negatively associated with innovative work behavior.

**Individual differences.**

Albert Bandura (1977) defines self-efficacy as “the degree to which an individual believes that he or she can successfully execute the behavior required to achieve some outcome”. Self-efficacy is one of the most researched items and has become a very important measure in industrial and organizational psychology because of the influence it has on work-related performance (Gist & Mitchell, 1992; Gist, Schwoerer, & Rosen, 1989). Someone who believes he can execute a task successfully has more chances of executing it successfully in comparison to someone who does not. It is important to understand that self-efficacy is a highly dynamic concept affected by the environment, the task and the individual. The degree of self-efficacy can change over time in regard to the information and experience obtained (Gist & Mitchell, 1992). For example an employee can have a higher degree of self-efficacy after ten months of experience in performing the same tasks in comparison to when he was a starter. Researchers introduced a derivative of self-efficacy to have a concept independent from situation and task. This way researchers could make more conclusive statements about the relations of work-related outcomes and ‘general self-efficacy’ or an ‘individuals’ perception of the ability to perform across a variety of situations” (Judge, Erez & Bono, 1998, p. 170). In this research, we will focus on general self-efficacy. There is a lot of variation in the degree of general self-efficacy between individuals. There are employees that come into an organization with a high basic degree of general self-efficacy, in contrast with experienced employees that almost never experience a high degree in general self-efficacy. We think that these individual differences will have an effect in the relationship between error orientation and innovative work behavior. Hsu et al. (2011) found that employees that rate high in creative self-efficacy, the belief to perform a task in the innovative process successfully, display more innovative behavior. Hammond, Neff, Farr, Schwall, & Zhao (2011) conducted a meta-analysis where they found that there was a positively moderate correlation between both job-related self-efficacy and creative self-efficacy and innovative work behavior. Self-
efficacy has its effect on work-related performance dimensions but there has not been consensus about the degree of influence it has. Judge et al. (2007) researched literature in regards to the effect of stable individual differences, cognitive ability, experience and the Big Five personality traits, on the dynamic concept of self-efficacy on work-related performance. In contrast to Bandura’s (1977) arguments, they argued that the effects of the stable traits are not overwhelmed by the effects of self-efficacy. They concluded that self-efficacy predicted work-related performance in specific conditions; for example when task complexity was low, the time interval between the measurement of self-efficacy and performance was not too long, feedback was provided immediately and the participants could set their own goals, the measurement was task performance and more importantly when controlled for individual differences, the predictive validity of self-efficacy for work-related performance decreased significantly. This is why when we are measuring for the effects of general self-efficacy, we are taking into account the individual differences in personality.

Apart from general self-efficacy, we are also taking personality into account. Personality has been widely researched in industrial and organizational psychology, some might say psychologist overestimate the importance of personality in job-related context. The five-factor model (FFM) or the Big Five has been considered as the most useful taxonomy in personality research. Although it does have its critics, there has been evidence of genetic influences, it proves to be stable over a human lifespan and it serves as a valuable measure for theoretical frameworks (Barrick, Mount, & Judge, 2001). There have been mixed results in research about the link between personality and work-related performance. The Big Five have been found across cultures and have a high predictive value starting (Denissen, Geenen, Van Aken, Gosling, & Potter, 2008). Barrick & Mount (2005) argue that personality influences people’s behavior on the job and even if the effect sizes of personality traits are not always overwhelming, it is useful to take personality into account when researching work-related performance. They mentioned several reasons for taking personality in consideration when studying work behavior. First of all, when managers are selecting people for their team they will take personality into account. They are much more likely to hire dependent people, than anxious, unreliable people. Secondly, there is evidence for some personality traits (like conscientiousness) of the Big Five that can serve as a general predictor of work-related performance. On the other hand, there
are traits that have a predictive value in particular situations, or traits that have a predictive value with a specific objective in the work context (like openness to experience for a creative function). Thirdly, they mention the incremental validity that personality has on top of other constructs. Personality is part of human behavior and can predict part of the behavior other constructs fail to cover. Fourthly, personality measures, like the Big Five, in the contrary to intelligence measures, do not make racists or ethnic distinctions. In addition to this, personality is a stable concept that can predict career success in late adulthood from the personality traits measured in childhood. The final and most important reason to include personality in research is the relationship with work-related outcomes. In this meta-analysis, they found that personality predicted work-related behaviors like “counterproductive behavior, turnover, absenteeism, tardiness, and more citizenship behaviors, success in groups, job satisfaction, safety, leader- ship effectiveness, and task performance. They also influence the fit with other individuals (e.g., supervisors), a team, or an organization” (Barrick & Mount, 2005, p363). In a literature review Barrick et al. (2001) found that emotional stability (the lack of anxiety, hostility, depression and personal insecurity) and especially conscientiousness (associated with dependability, achievement striving, constructing and following plans) are found to be significant predictors for work-related performance, while openness to experience (intellect, creativity, unconventionality and broad-mindedness), extraversion (sociability, dominance, ambition, positive emotionality and excitement-seeking) and agreeableness (cooperation, trustfulness, compliance and affability) did not have a significant effect on general work-related performance. These findings however do not indicate that personality traits could have an effect on more specific dimensions of work-related performance like innovative performance. Personality traits do not have the biggest effect sizes when researched in industrial and organizational psychology, but a lot of work behaviors are grounded in personality and have an influence on work-related performance. For example, a salesman that is less friendly, less agreeable, or more chaotic, less conscientious, probably will have worse sales performance than a more friendly and organized salesman. In conclusion, because we are measuring a work-related performance measure, innovative work behavior, we will take personality traits, conscientiousness and openness to experience, into account.
Individual differences, innovative work behavior and error orientation.

In error orientation literature, the role of individual differences is often overlooked. There is some literature about error management training that give an indication in how individual differences play a role in error orientation. Gully et al. (2002) found that people who have more cognitive abilities, can benefit more from error management training. This implies that learning from errors requires a lot of cognitive resources. Support for this was found in a study that found links between learning orientation and error mastery, an approach focusing on the positive effects of errors by balancing both error management and error prevention, and the effect of self-regulation (Van Dyck, Van Hooft, De Gilder, & Liesveld, 2010). In this study, they found that people who need to put cognitive resources into self-regulation will have less resources for error mastery.

Research has found that intrapreneurship, and entrepreneurship, is related to general self-efficacy (Douglas & Fitzsimmons, 2013). Intrapreneurs need a high degree of general self-efficacy to perform innovatively, the same way entrepreneurs need it. Entrepreneurs need to persevere when problems and challenges arise. Entrepreneurs that have a higher degree of general self-efficacy have more success in business (Rauch & Frese, 2007). For creativity research, the construct of creative self-efficacy was introduced in measure general self-efficacy specifically for creative behavior. As previously discussed, we know that innovative behavior is broader than creativity. It is interesting however to take notice that a high level of creative self-efficacy is associated with more innovative behavior at work (Fan, Hou, & Fan, 2011). Employees who bring initiatives, must be convinced about the positive outcome of their own ideas. Employees can not expect to change things in the organization and persuade people if they do not believe in it themselves. We are considering general self-efficacy in this research, as we are not only interested in the creative performance of an employee, but all aspects of innovative work behavior.

Employees scoring high in self-efficacy make self-serving attributions after unsuccessful performances (Silver, Mitchell, & Gist, 1995). This means that if employees are confident that they will succeed at a certain task, they will believe that their own skills or effort are the cause of the success rather than fortunate circumstances. On the contrary people who are low in general self-efficacy tend to see fortunate circumstances as the
cause of success and blame failure on a lack of skill they have. Arenas et al. (2006) found that self-efficacy is influenced by error management. People who look positively at errors and try to learn from them have more confidence in their ability to succeed. We are interested in how this relationship gets established when innovative work behavior is the dependent variable. We argue that general self-efficacy influences the relationship between error orientation and innovative work behavior. When employees score high on error-oriented learning they will display more innovative work behavior when they have a high degree of general self-efficacy. On the other hand, we believe that the negative error orientation of employees, but with confidence in succeeding, will not impact their display of innovative work behavior as much as when they have a low degree in general self-efficacy. We state that general self-efficacy will negatively influence the relationship between error-oriented covering and error-oriented worry and innovative work behavior.

Hypothesis 2a: The relationship between error-oriented learning and innovative work behavior is moderated by general self-efficacy of employees. Specifically, we expect that the positive relationship between error-oriented learning and innovative work behavior is strengthened by the level of general self-efficacy.

Hypothesis 2b: The relationship between error-oriented covering and innovative work behavior is moderated by general self-efficacy of employees. Specifically, we expect that the negative relationship between error-oriented covering and innovative work behavior is weakened by the level of general self-efficacy.

Hypothesis 2c: The relationship between error-oriented worry and innovative work behavior is moderated by general self-efficacy of employees. Specifically, we expect that the negative relationship between error-oriented worry and innovative work behavior is weakened by the level of general self-efficacy.

Gully et al. (2002) integrated some of the big five personality traits in their research to find that people who are more open to experience are less likely to benefit from error avoidance training in comparison to error management training, they also found support that people who score high in conscientiousness are less likely to benefit from error management training (Gully, Payne, Koles, & Whiteman, 2002; Loh, Andrews, Hesketh, & Griffin, 2013). It is interesting to see that conscientiousness that predicts
work-related performance is not related positively to error management training (Barrick et al., 2001). This can be explained that people who score high in conscientiousness prefer that everything goes according to plan and are not allowing errors. Even though personality is not the primary focus of this study, we do include the personality variables, conscientiousness and openness to experience, to validate whether these have an influence on the relationship between error orientation and innovative work behavior.

The variables agreeableness, emotional stability and extraversion will not be included as there is not enough indication that these traits play a significant role in innovative behavior on the job. Emotional stability could help intrapreneurs with an error management approach to be consistent in their beliefs and approach when they are taking risks to come forward with new ideas and initiatives. Earlier research shows that emotional stability and extraversion have an effect on general self-efficacy, but not on general work-related outcomes (Judge, Jackson, Shaw, Scott, & Rich, 2007). Loh et al. (2013) found that people who are more agreeable, benefit more from error management training. The fact that communication is an aspect of an error management approach explains that employees who score higher on agreeableness, being more helpful and cooperative, are more affected by an error management training. In conclusion, these traits have been included in work-related performance research, but there were too few arguments to include them in the research model.

We argue that it is valuable to include openness to experience and conscientiousness as there has not been a lot of research about the relationship between the big five personality traits and innovative work behavior. Research has indicated that conscientiousness and openness to experience are likely to have a relationship with innovative work behavior. Hammond et al. (2011) and Yesil & Sozbilir (2013) discussed the relationship between openness to experience and innovative behavior of employees. According to the literature review of Hammond et al. (2011) there is a link between the process of idea generation and openness to experience as employees that score high on this trait are more imaginative, have a high intellectual curiosity and are less concerned when confronted with new experience, but the effect seems to be more moderate than expected. Conscientiousness on the other hand is considered to be one of the most supported predictors regarding work-related performance (Barrick & Mount, 2005).
We found literature about other personality constructs and their link to innovative behavior. For instance, Giebels et al. (2016) researched whether employee with a proactive personality tend to display more innovative employee behavior. Proactive personality is linked to general traits of the big five but can be distinguished from them as it describes the motivation to respond or change the environment. In a meta-analysis linking personality and artistic creativity, it was concluded that openness to experience has a strong relationship with creativity and conscientiousness has a negative link (G. Feist, 1998). If we regard this link from our perspective, we can argue that employees who score high on openness to experiences are presumed to be more likely to learn new views and perspectives because this personality trait entails not only being more imaginative, but it also describes people who look for new experiences, can easily adapt their own perspective and are less prone to submission and prejudice (Madrid, Patterson, Birdi, Leiva, & Kausel, 2014). Conscientious employees tend to be more cautious and are less likely to take the necessary risks in order to innovate. Based on these findings we believe that openness to experience and conscientiousness will moderate the effect of error orientation on innovative work behavior. Employees who are high in openness to experience, will be more likely to benefit from having a positive error orientation in order to display more innovative work behavior. On the contrary employees that have a negative error orientation will display less innovative work behavior when they have a high level of conscientiousness.

**Hypothesis 3a:** The relationship between error-oriented learning and innovative work behavior is moderated by openness to experience of employees. Specifically, we expect that the positive relationship between error-oriented learning and innovative work behavior is strengthened by the level of openness to experience.

**Hypothesis 3b:** The relationship between error-oriented covering and innovative work behavior is moderated by openness to experience of employees. Specifically, we expect that the negative relationship between error-oriented covering and innovative work behavior is weakened by the level of openness to experience.

**Hypothesis 3c:** The relationship between error-oriented worry and innovative work behavior is moderated by openness to experience of employees. Specifically, we expect that
the negative relationship between error-oriented worry and innovative work behavior is weakened by the level of openness to experience.

**Hypothesis 4a:** The relationship between error-oriented learning and innovative work behavior is moderated by conscientiousness of employees. Specifically, we expect that the positive relationship between error-oriented learning and innovative work behavior is weakened by the level of conscientiousness.

**Hypothesis 4b:** The relationship between error-oriented covering and innovative work behavior is moderated by conscientiousness of employees. Specifically, we expect that the negative relationship between error-oriented covering and innovative work behavior is strengthened by the level of conscientiousness.

**Hypothesis 4c:** The relationship between error-oriented worry and innovative work behavior is moderated by conscientiousness of employees. Specifically, we expect that the negative relationship between error-oriented worry and innovative work behavior is strengthened by the level of conscientiousness.

In figure 1 you can find an overview of the model with the variables and hypotheses included in this research.

![Figure 1. Research Model](image-url)
Method

Sample and Procedure

We tested these hypotheses by conducting a quantitative study. We collected the data via an online questionnaire. We chose to approach our personal network and used a snowball method to let the questionnaire be distributed by the participants as well in order to have a more diverse sample. The questions and instructions were in Dutch and distributed in the Dutch speaking area of Belgium in order to remove a potential language barrier. The questionnaire was anonymous, voluntary and there were no financial incentives to take part. The participants had the option to leave their email address if they wanted more information about the constructs and the research findings afterwards. 195 employees working for different organizations completed the questionnaire ($N=195$). The response rate could not be estimated. The reach of the survey would have been a lot bigger than the people responding, assuming a lot of people saw the link of the questionnaire, but chose not to take part and did not click on the link of the survey. Uncompleted questionnaires were deleted, most of these did not make it passed the first page, the page where instructions were described.

The first part of the questionnaire, we asked about demographic details in order to get a good description of this sample. The average age of the participants was 28.7 years old ($SD=6.3$), ranging from 21 to 63 years old. From the 195 participants, 46.7% were female. Seniority had an average of four years ($SD=6$). 69.7% of the participants had a Master degree, 12.3% attained a professional Bachelor, another 12.3% did not get a Bachelor or Master degree, 1% succeeded in getting a doctor’s degree. We had participants from both public, 22.6%, and private, 77.4% sectors. After clustering similar industries with different labels, for example IT and ICT, we found that the participants were employed in 40 different industries. IT was represented the most with 27% of the participants. Consulting, 15%, care, 14%, catering, 13% and construction, 10% were notably represented as well. 42.6% worked for large organizations, organizations larger than 250 employees, 15.9% was working for a micro organization, with no more than 10 employees, the other 42% was equally distributed among small and medium sized organizations. The classification of the size of organization was based on the recommendation of the
European Commission regarding the definition of SME’s (Commission Recommendation, 2003). 13.4% were self-employed.

Measures

**Error orientation.**

For error orientation we used the EOMS (Schell, 2012), Error-Orientated Motivation Scale, which is derived from the EOQ, or Error Orientation Questionnaire (Rybowiak, Garst, Frese, & Batinic, 1999). The EOQ measured positive and negative interpretations of errors. Schell (2012) argued that a more brief version of the EOQ is more useful when focusing on core error approach-avoidance attitudes because it is more general and can be used across a variation of situations and tasks. The EOMS is an English questionnaire that we translated in Dutch via a back-translation procedure and consists of 21 items and are grouped in three factors: error-oriented learning (e.g. *I try to learn something from every error I commit*), error-oriented covering (e.g. *I do what I can to make sure that no one knows when I make mistakes*), and error-oriented worry (e.g. *I often worry about making mistakes when I am engaged in some task*) (Schell, 2012). These items were scored on a 5-point Likert scale ranging from (1) *not at all like me* to (5) *very much like me*.

For the Error Orientation Motivation Scale we did a principal component analysis (table 1). We imposed a three factor structure based upon the research of Schell (2012) with oblimin rotation because we expect a correlation between the three factors. For example, we expect that employees that score high on error-oriented learning, will not score as high on negative error orientation scales. The items scored good on communalities, except for item 19 (e.g. *I believe discussing my mistakes isn’t worth the time it takes*) that had a low score of .27. The pattern matrix confirmed the assumption of three components with primary loadings ranging from .51 to .85 and no items that had a cross-loading, in other words items that loaded more than .2 on two components, except for item 19 that loaded -.20 on EOMS-L and .51 on EOMS-C. We decided to remove this item, this also improved the internal consistency of EOMS-C as well. The three factors together explained .56 of the variance in this scale. After the adaptation of the scales EOMS-L had a
Cronbach’s alpha of ($\alpha=.79$), EOMS-C had an internal consistency of ($\alpha=.85$) and EOMS-W had an internal consistency of ($\alpha=.90$).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Error-Oriented Worry</th>
<th>Error-Oriented Learning</th>
<th>Error-Oriented Covering</th>
</tr>
</thead>
<tbody>
<tr>
<td>EOMS-W 1</td>
<td>1</td>
<td><strong>0.86</strong></td>
<td>-0.15</td>
<td>-0.04</td>
</tr>
<tr>
<td>EOMS-W 2</td>
<td>2</td>
<td><strong>0.84</strong></td>
<td>-0.10</td>
<td>0.01</td>
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<tr>
<td>EOMS-W 3</td>
<td>3</td>
<td><strong>0.77</strong></td>
<td>0.04</td>
<td>-0.05</td>
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<tr>
<td>EOMS-W 4</td>
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<td>0.07</td>
<td>0.05</td>
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<td>EOMS-W 5</td>
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<td>0.07</td>
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<tr>
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<td><strong>0.73</strong></td>
<td>0.13</td>
<td>0.02</td>
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<tr>
<td>EOMS-L 5</td>
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<td><strong>0.67</strong></td>
<td>0.01</td>
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<td>EOMS-C 1</td>
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<tr>
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<tr>
<td>EOMS-C 7</td>
<td>21</td>
<td>0.13</td>
<td>0.04</td>
<td><strong>0.66</strong></td>
</tr>
</tbody>
</table>

Note: Loadings of items >0.30 on a factor are shown in bold typeface

**Personality.**

For personality we used the Dutch version of the Big Five Inventory (Denissen et al., 2008). This is one of the briefer measures of the Big Five to accommodate the participants in their use of time and motivation. One of the main advantages of this measure, apart from having a high internal consistency, factorial and external validity and good applicability in different age groups like the English original (John & Srivastava, 1999), is that it is freely available on the internet and therefore widely used in online survey tools. The Dutch BFI consists of 44 items measuring one of the five personality traits, more importantly conscientiousness ($\alpha=.82$) (e.g. I see myself as someone that works thoroughly) and openness to experience ($\alpha=.79$) (e.g. I see myself as someone who is...
original, who comes with new ideas). This questionnaire also measured Agreeableness, extraversion and Neuroticism but are not included in this study. We increased the internal consistency of openness to experience by deleting i35, i10 and i15 from a Cronbach’s alpha of .75 to .79. These items were scored on a 5-point Likert scale ranging from (1) strongly disagree to (5) Strongly agree.

**General self-efficacy.**

We adopted the 8-item scale for general self-efficacy from Chen, Gully, & Eden (2001). The respondents were asked to score the items (e.g. I will be able to achieve most of the goals that I have set for myself) on a 5-point Likert scale ranging from (1) strongly disagree to (5) strongly agree ($\alpha = .84$). In previous research this unidimensional scale not only demonstrated high reliability (Scherbaum, Cohen-Charash, & Kern, 2006), it also showed that it to lends itself especially for studies that transcend specific situations and can be used to measure general self-efficacy with respondents that differ in tasks and work environments (Chen, Gully, & Eden, 2001). This scale was originally constructed in English and was translated in Dutch for this research via a back-translation procedure.

**Innovative work behavior.**

For innovative work behavior we chose a 9 item scale for innovative work behavior created by Onne Janssen (Janssen, 2000) based on Scott and Bruce’ s (1994) scale for individual innovative behavior on the workplace. This scale consisted of English items and was translated into Dutch for this research via the back-translation procedure. Scott and Bruce (1994) constructed three items for each of the three aspects of innovative work behavior: idea generation (e.g. Creating new ideas for difficult issues), idea promotion (e.g.: Mobilizing support for innovative ideas), idea realization (e.g. evaluating the utility of innovative ideas). These combined aspects were conceived to additively create an overall scale for innovative work behavior and confirmed by Janssen (2000) and Chen et al. (2016). Respondents were asked to rate how often they would perform innovative work behaviors in the workplace on a 7-point scale ranging from (1) never to (7) always ($\alpha=.90$). There has been considerable research presenting the convergent validity between self-report and supervisory ratings in innovation (Chen, Li, & Leung, 2016; Janssen, 2000). The use of self-report measures in innovation research has theoretical arguments
as well. One being that an employee has more awareness of the subtle actions to innovate that can not always be observed by a supervisor. Supervisory ratings on the other hand can be biased by the fact that a supervisor would notice the actions intended to impress them rather than all the innovative actions taken by employees (Chen et al., 2016; Janssen, 2000).

Results

Before we could test the hypotheses, we calculated the internal consistency of the measurements scales through reliability analyses. In some cases, we deleted items to improve the Cronbach’s alpha of the scale. For the Error Orientation Motivation Scale, we did a principal component analysis to confirm the underlying and suggested structure of the measurement scale. For the innovative work behavior measurement scale, we did a principal component analysis as well. In line with previous work, we found all 9 items measured the same construct (Chen, Li, & Leung, 2016).

To be able to give an overview of the demographics of this sample, we calculated the mean, standard deviation and range. We did the same for the measurement scales in order to work with the variables for further analyses. Our final prior analysis was calculating the bivariate Pearson correlations of the variables. Table 2 gives an overview of the means, standard deviations, reliabilities and Pearson correlations of the variables.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<td>-0.16*</td>
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<td>0.85</td>
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<td>0.04</td>
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Note. Sample size is N=195

For sex, male was coded as '0', female as '1'
Education was dummy coded, higher education as '1' and no higher education as '0'
*p<0.05; **p<0.01

For testing the hypotheses, a hierarchical linear regression analysis was used to test for the dependency of the dependent variables and look for support for moderation.
The hierarchical linear regression analysis consists of a stepwise approach. The first step was to see how much of the variance of the independent variable, innovative work behavior, was explained by the control variables, sex, age and education. For the second step, the independent variables, error-oriented learning, error-oriented worry, error-oriented covering, general self-efficacy, openness to experience and conscientiousness, were added. Finally, the product terms of each error orientation with general self-efficacy, with openness to experience and with conscientiousness were added, to make an observation of potential moderating effects. With this stepwise approach, an observation could be made of how much effect the control variables have, before adding the main variables. This gave a clearer observation of what effect our main variables have on the independent variable. The same goes for step three when the product terms were added.

**Descriptive Statistics and Correlations**

A Pearson correlation analysis was used to get an initial overview of the correlations between the variables in this study. Table 2 gives an overview of these correlations. An observation can be made of a significant, positive correlation between sex and conscientiousness \((r=.16; p<.05)\), this implies that women score higher on conscientiousness than men. Men, on the other hand, were found to score significantly higher on general self-efficacy \((r=-.19; p<.01)\) and lower on error-oriented worry \((r=.18; p<.05)\). In this sample, age was negatively correlated with the education level of employees \((r=-.24; p<.01)\).

Table 2 also indicated correlations between variables measuring personality. Both openness to experience \((r=.17; p<.05)\) and conscientiousness \((r=.27; p<.01)\) both showed a positive correlation with general self-efficacy. The correlations between the independent variables and individual differences indicated that error-oriented learning was positively correlated with conscientiousness \((r=.24; p<.01)\), openness to experience \((r=.15; p<.05)\) and general self-efficacy \((r=.24; p<.01)\). Error-oriented worry showed a negative correlation with general self-efficacy \((r=-.14; p<.05)\). Finally, error-oriented covering was negatively correlated with conscientiousness \((r=-.14; p<.05)\).
Regarding the research questions, table 2 showed a significant correlation between error-oriented learning and innovative work behavior (\(r=.21; p<.01\)), which is in line with hypothesis 1a. However, there was no indication for support of hypothesis 1b and 1c, as there was no correlation between error-oriented covering and innovative work behavior or between error-oriented worry and innovative work behavior.

**Testing Hypotheses**

In order to test for moderation, a hierarchical linear regression analysis with centered variables was applied. First the impact of the control variables were assessed. Table 3 illustrates that sex has an impact on innovative work behavior: men were found to perform more innovative work behavior than women (\(B=-.343; p<.01\)), but overall these control variables only explained for 5.5% of the variance in innovative work behavior (\(R^2=.055\)). In a second step, the independent variables (error-oriented learning, error-oriented worry, error-oriented covering) and the potential moderators (openness to experience, conscientiousness and general self-efficacy) were added. The model containing these factors explained little over 31.2% of the total variance in innovative work behavior (\(R^2=.312\)). Error-oriented learning had a significant positive effect (\(B=.231; p<.05\)) on innovative work behavior, supporting hypothesis H1a. In other words, employees who see errors as a learning opportunity perform more innovative work behavior. Error-oriented worry and error-oriented covering had no significant effect on innovative work behavior, this means that hypotheses H1b and H1c do not get supported. This implies that employees who had other error orientations instead of error oriented-learning, do not perform worse on innovative work behavior. Individual differences of employees did have an effect on innovative work behavior. Openness to experience (\(B=.414; p<0.01\)) had a significant positive effect on innovative work behavior, while conscientiousness had no significant effect. General self-efficacy had a significant positive effect on innovative work behavior (\(B=.306; p<0.01\)).
The final step in the linear regression analysis is the interaction effect. Nine interaction terms were added to the model used in the first step of the analysis: the three error orientations were put in a product term with the three potential moderators, as can be seen in table 3. Because there was no main effect of error-oriented worry and error-oriented covering we do not have enough evidence to support a moderating effect of hypotheses H2b, H2c, H3b, H3c, H4b and H4c. The observation of a moderating effect requires a significant main effect of the independent on the dependent variable. The third model explains 38,1% of the variance in innovative work behavior, which exceeds the explanatory power of the first and second model. In the third model, general self-efficacy

<table>
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<th>Step</th>
<th>Control Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
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<td>-0.237*</td>
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R² 0.055 0.312 0.381
Adjusted R² 0.04 0.279 0.318
ΔR² 0.055* 0.257** 0.055*

Note. N=195 *p<0.05;**p<0.01
Do Intrapreneurs Learn from their Mistakes?

(B=.284; p<.05) and openness to experience (B=.401; p<.01) have a direct significant effect on innovative work behavior, while conscientiousness has not.

To test for the second set of hypotheses, the moderating effect of the product of independent variables and general self-efficacy was assessed. There is no significant effect of error-oriented learning on innovative work behavior in this model. There is however a significant effect of the product term error-oriented learning x general self-efficacy (B=.116; p<.01), which offers support for hypothesis H2a. There is a moderating effect of general self-efficacy on the relationship between error-oriented learning and innovative work behavior. In this model, there still is no significant effect of error-oriented worry and error-oriented covering on innovative work behavior.

To check the results of the third set of hypotheses, the product of the variables measuring error orientation and openness to experience was assessed. We do not observe a significant interaction effect of error-oriented learning and openness to experience. As a result, there is no sufficient evidence in support of hypothesis H3a; in other words, there is no sufficient evidence for a moderating effect of openness to experience on the effect of error-oriented learning on innovative work behavior. Regarding other interaction effects, we observe a significant negative effect of error-oriented worry x openness to experience (B=-.129; p<.05).

There are no significant interaction effects in support of the fourth set of hypotheses, H4a, H4b, H4c. This means there is no support for conscientiousness to be a moderator in the relationship between error-oriented learning and innovative work behavior. As previously discussed, the hypotheses for error-oriented worry and error-oriented covering are not supported by the findings regarding H1b and H1c.
Discussion

Research Findings

The control variables only accounted for 5.5% of the variance of innovative work behavior. This means that only 5.5% of the total variance could be explained by the sex, education level and age of the participants. The second model, measuring the main effects of the variables on innovative work behavior explained 31.2% of the variance in innovative work behavior. The added variables had a significant added value in comparison to the control variables and explained a considerable amount of the total variance of innovative work behavior. The main effect of error orientation on innovative work behavior is partially confirmed. In the first group of hypotheses, there is only a significant effect of error-oriented learning on innovative work behavior, but no significant effect of error-oriented worry on innovative work behavior and error-oriented covering on innovative work behavior. This entails that employees that see errors as an opportunity to learn, will perform more innovative work behavior. This effect is significant and positive, but rather small. As previously discussed, research showed that errors can have positive outcomes like innovation (Frese & Keith, 2015; Van Dyck, Frese, Baer, & Sonnentag, 2005). This finding gives support to the idea that in order to perform innovative work behavior, employees should be able to make errors and have a positive attitude towards errors. In this sense, it is logical that employees that deal positively with errors, can perform more innovative work behavior.

On the other hand, there is no significant effect of error-oriented worry on innovative work behavior. We expected that when employees attach negative emotions to making errors, they will be less likely to be more innovative on the job. According to these findings the amount of negative emotions towards errors does not play a role when performing innovative work behavior. Perhaps employees who experience a high amount of negative emotions towards making errors do not let the emotions affect their behavior in performing negative behavior. The argument for this hypothesis was that employees that tend to worry about errors, associate innovative work behavior with a risk of making errors and therefore avoid trying to be innovative. Perhaps employees don not associate innovative work behavior as an error-risky concept. Another explanation could be that
employees attach positive emotions to innovative work behavior and experience less negative emotions when making errors in innovative behavior.

The study find no significant effect of error-oriented covering on innovative work behavior as well. This means that employees that feel that errors should be covered up do not perform less or more innovative work behavior. We expected that not having open communication, more specifically the communication about errors and covering up errors, would limit innovative work behavior. Employees need to find support for their idea and need to evaluate the innovation that is being implemented (Chen et al., 2016). Because of these findings, we must conclude that this does not imply that employees need to communicate about errors. An explanation could be that because employees do not communicate about errors, and this makes it easier to find support for their ideas and the implementation.

There is a moderate significant effect of general self-efficacy on innovative work behavior in model two. The more employees feel like they can complete tasks successfully, the more innovation they can bring into the organization. There has already been some indications that are in line with these findings. Correlation have already been found between job-related general self-efficacy, creative self-efficacy and innovative behavior (Hammond et al., 2011). Frese & Keith (2015) found that expecting to competently deal with errors and believing that you can learn from errors, boosts personal initiatives and proactive behavior. Giebels et al. (2016) found a considerable significant effect of proactive personality on innovative employee behavior. Douglas & Fitzsimmons (2013) found that entrepreneurial self-efficacy predicted both entrepreneurial and intrapreneurial intentions. An employee needs to have confidence in completing tasks successfully in order to perform innovative work behavior. Trying to create, implement and realize ideas for the organizations is challenging, and to overcome these kind of challenges, self-efficacy is playing its role.

The biggest effect in this regression was that for openness to experience on innovative work behavior. Normally, openness to experience is viewed as one of the Big Five personality traits that is the least probable to be related to work-related performance (Barrick, Mount, & Judge, 2001). This is however an effect we could have expected because being creative is an item measured by the factor of openness to experience. It needs
no argument that creativity can be very useful in the idea generation process, we found however a moderate effect in line with the literary review of Hammond et al. (2011).

Conscientiousness on the other hand, had no significant effect. This was not what was expected, because conscientious people tend to be more cautious and might be more reluctant to bring innovations to the organization. Previous research has shown however that conscientiousness is positively related to work performance across diverse occupational groups, teamwork and training performance (Barrick et al., 2001). Conscientiousness however has several facets which can influence work-related outcomes in negative and/or positive ways and perhaps this trait works as a double-edged sword (Brent, Oleksandr, & Lewis, 2005). Conscientiousness is related to goal setting and persistence. An intrapreneur probably needs persistence to overcome the obstacles in order to bring organizational renewal (Rigtering & Weitzel, 2013). On top of that, we also discussed that according to Douglas & Fitzsimmons (2013) people who want to perform intrapreneurship are likely to respect the rules and procedures of an organization for bringing innovations. Conscientious people are more likely to respect these procedures. The persistence and procedural approach that conscientious people have, can have a positive influence on the performance of innovative work behavior and this counters the negative influence of cautiousness and reluctance towards change.

The third model explained 38.1% of the variance in innovative work behavior, in comparison to the second model, the added product terms explain a significant amount of variance in innovative work behavior to take notice of. In perspective of the main effect of error-oriented learning on innovative work behavior, we can discuss potential moderating effects of general self-efficacy, openness to experience and conscientiousness. Regarding general self-efficacy, we observe that there is a significant effect of the product term of error-oriented learning and general self-efficacy. In other words, an employee that views errors as a learning opportunity displays more innovative work behavior, when the employee has a high amount of confidence in completing tasks successfully. This effect is shown in figure 2.
The findings that error management strategy has an influence on general self-efficacy were already discussed. The fact that there is interaction between error-oriented learning and general self-efficacy on innovative work behavior, could indicate that there is moderation of general self-efficacy in the effect of error-oriented learning on innovative work behavior. Another interpretation could be that error-oriented learning has a moderating effect on the effect of general self-efficacy on innovative work behavior. Most importantly, this interaction effect shows that the people who perform the most innovative behavior on the job are high in general self-efficacy and have a learning orientations towards errors. Regarding openness to experience and conscientiousness, we found no significant effect of interaction with error-oriented learning. There was however, as previously mentioned, a main effect of openness to experience. This indicates that openness to experience and error-oriented learning explain variance of innovative work behavior separately, but do not interact with each other in this regard. It does not matter whether an employee has a learning orientation towards errors if they score high on openness to experience. Employees that are open, creative and intelligent will perform innovative work behavior nevertheless. This can be explained by the fact that people who are open to new experiences, intelligent, creative and somewhat adventurous are likely to adopt a positive
attitude towards errors anyway. In the Pearson Correlation analysis (table 2), we found an indication for this assumption. It shows that error-oriented learning and openness to experience have a significant positive correlation. There was no significant interaction effect between conscientiousness and error-oriented learning found on innovative work behavior. It was expected that employees that see errors as learning opportunities, would perform less innovative work behavior, when they display this trait that implies cautiousness and reliability. It was already mentioned that conscientiousness did not had a significant effect on innovative work behavior. According to the regression analysis, whether an employee has or has not error-oriented learning approach, their level of conscientiousness does not play a significant role to perform innovative work behavior.

On top of the interaction of error-oriented learning and general self-efficacy, we find a second significant interaction effect. The product of error-oriented worry and openness to experience has a significant small negative effect on innovative work behavior. Figure 3 shows the slope of this effect. The more employees tend to worry about errors, the less innovative work behavior employees are likely to perform if they are high in openness to experience. Employees that are highly creative and intelligent get hindered more to perform innovatively if they are attaching negative emotions towards errors.

Figure 3. Two-way interaction plot of error-oriented worry and openness to experience
There was no support found for the interaction of error-oriented worry and conscientiousness or general self-efficacy on innovative work behavior. It was already mentioned in this study that conscientiousness is a personality trait that can work both as a positive and a negative influence that cancels each other out. There was a significant negative correlation between general self-efficacy and error-oriented worry. So it makes sense that someone who is highly confident in succeeding does not tend to worry a lot about errors. Worries or frustrations about errors do not add something to the effect of general self-efficacy on innovative work behavior because this error orientation probably covers, in opposite direction, for a part the same load. The role of general self-efficacy in this case is more important for explaining the variance in innovative work behavior than error-oriented worry.

Error-oriented covering had no interaction with one of the personality traits or general self-efficacy on innovative work behavior. It did have a small negative correlation with conscientiousness, which could indicate that dependable employees are less likely to cover up their errors. There was no relationship with openness to experience or general self-efficacy. Being more or less open towards new experiences or having more confidence in completing tasks successfully does not help or hinder employees who perceive errors as something to cover up to perform innovative work behavior.

Finally, intercorrelations were found in the analysis between the variables that might give another perspective on the dynamic of these variables. We could observe a significant correlation between conscientiousness, a personality trait that is associated with several work-related performance variables, and general self-efficacy (Barrick & Mount, 2005). Openness to experience was positively related to general self-efficacy. Regarding the effects of general self-efficacy, we should be aware of the fact that personality plays its part in whether or not somebody is able to have a belief in their own capabilities to perform. Looking at the correlations between the independent variables and individual differences, we observe that error-oriented learning had a significant, positive correlation with conscientiousness. This correlation indicates the value of this personality trait in job-related context. Error-oriented worry had a small significant, negative correlation with general self-efficacy. Employees that tend to be frustrated about making errors are not associated with having belief in their ability to succeed in a certain task. Finally, error-
oriented covering had a negative correlation with conscientiousness. This indicates that in general, employees who have more belief in their abilities and are dependable are associated with positive error orientation. Employees who tend to worry about errors, are not really confident in their ability to succeed and employees who do not communicate about errors are less dependable.

In conclusion, the results and analyses regarding the research model indicate that we found support for H1a, H2a and H3c. People that see errors as an opportunity to learn, will be more likely to perform innovative work behavior, especially if they have a high degree of general self-efficacy. On the other hand people that see errors as an issue to worry about, will perform less innovative work behavior if they have a personality that is high in openness to experience. On top of this research model, we can observe in the regression analysis that general self-efficacy and openness to experience have a significant main effect on innovative work behavior.

Implications

Theoretical implications.

This study contributed to the research field of intrapreneurship by developing a moderation model to answer the question whether error orientation has an impact on innovative work behavior and how this effect was influenced by personality traits and general self-efficacy. Previous research regarding antecedents of intrapreneurship usually focused on personality or organizational support, managerial support or work context. Do intrapreneurs need time, money, autonomy, managerial support, transformational leadership to perform innovatively? Are intrapreneurs more proactive, open, more risk taking than others? We made a contribution to this research field by looking from another perspective. Instead of trying to expand this field of research by looking into concepts that are widely discussed by organizational psychologists like personality or work context, we were interested in attitudes. More specifically, we looked into the relationship between innovative work behavior and the attitudes employees have towards errors.

The first contribution we made, was finding support for the relationship between error-oriented learning and innovative work behavior. There was already support for the relationship between having an error management strategy and work-related performance
and the amount of personal initiatives (Frese & Keith, 2015; Van Dyck et al., 2005). With this research we showed a direct link between error-oriented learning and innovative work behavior. More specifically, we found support for the idea that people who see errors as a learning opportunity, perform more innovative behavior on the job. The effect size we found was small, but significant. error-oriented learning plays its role in innovative behavior on the job, but there are more factors at hand that can further explain what organizational circumstances, trait and attitudes an intrapreneur needs.

Secondly, we found that general self-efficacy plays an important role in innovative work behavior, even when the effects of personality are taken into consideration. Judge et al. (2007) argued that the role of general self-efficacy is less significant than previous research would lead on to believe. However we found support for the relevance of measuring general self-efficacy in this work performance-related outcome, in this case innovative work behavior. openness to experience might have had a bigger effect then general self-efficacy due to its relation with creativity and innovative behavior in general, this research indicates that general self-efficacy is worth to be taken into account when measuring work performance outcomes.

Thirdly, we linked personality traits of the five-factor model to innovative work behavior. There had been research about the relationship between proactive personality and innovative behavior, but not about the effect of conscientiousness and openness to experience on innovative work behavior. These traits as part of the Big Five are part of a personality model that serves as a scientific standard in personality research. This relationship between these personality traits was not the primary focus of this study but the variables in our hierarchical regression model were added, to get a better comprehension of the potential effects of error orientation on job-related innovative behavior. The study showed that there is a relationship of openness to experience with innovative work behavior. This can be explained by the fact that openness to experience is related to idea creation. Surprisingly conscientiousness did not have a significant effect in the research model. The significant effects that the study showed were relatively small. We should conclude that we should not overestimate the potential effects of personality in this regard.
Practical implications.

Not every organization however has the means to identify and attract people with the right personality that can perform more innovative behavior or invest in expensive research and development departments. Every organization can benefit from intrapreneurs or employees that can create, implement and realize innovations. In opposition to personality, attitudes are aspects that an organization can try to influence. Error orientations of employees are aspects that an organization can influence by for instance trainings or by creating a culture within the organization. By stimulating error-oriented learning, employees perform more innovative work behaviors. There was already support for the usefulness of creating an organizational error management culture and foster positive orientations towards errors and error management strategies with employees (Van Dyck et al., 2005). We know that error management training contributes in the creation of this culture and attitudes (Keith & Frese, 2008). To facilitate innovative work behavior, organizations can introduce and organize error management training and try and create this culture, not only for low level employees, but also for their supervisors and managers (Chen et al., 2016). On top of that there is an important role for managers, because they can contribute to the level of general self-efficacy by attaching value to the employees work, encourage innovative initiatives, provide resources and create an environment where errors and risk taking are condoned (Fan et al., 2011).

Limitations

One of the limitations of this research was that the sample was homogenous. The average age of was under 29 years old. In Belgium people can start working from there 16 until the retirement age of 67 years old. The range of the sample range from 21 until 63 was representative but in general there was an overrepresentation of young ages in order to have a good representation of the working population in Belgium. This is probably why the average seniority was four years. This is very low. 88% of the sample had enjoyed a higher education, while the average in Belgium is around 21% (Onderwijsniveau van de Belgische bevolking van 15-64 jaar, 2006, 2011, 2016, 2017, March). The reason why this sample turned out to be young and highly educated is probably because of the method used in the collection of the data. A lot of the people who were approached for this research were part of the personal network of the student writing this
dissertation. We tried to diversify the sample by using a snowball effect. Asking participants to approach their co-workers, family and friends. This might have diversified the age group a bit, but not the educational level. The question is whether a young and highly educated sample could have influenced the research findings. In the study of Chen et al. (2016) there was no significant correlation found between age, tenure or education with innovative behavior or general self-efficacy. Giebels et al (2016) did not find a significant relation between age and innovative behavior either. On the other hand Battistelli, Montani, & Odoardi (2013) found a significant positive relationship between both age and level of education and innovative work behavior. Regarding error orientation, there is no indication there is a link between age and work experience and error orientation (Rybowiak et al., 1999).

Another limitation we should not fail to mention, is that the measurement scales that we used are self-report measurements. First of all there is a threat of common method variance (Giebels, de Reuver, Rispens, & Ufkes, 2016). However, the intercorrelations between variables are quite low ranging from .00 to .44. This indicates that common method variance does not always lower the correlations in the study. On top of that common method variance can hide the existence of an interaction effect and this means that finding an interaction effect should be considered as strong support for that interaction effect. Another downside of self-report measurements is that participants might have been motivated to respond more in a socially accepted way. Although it was mentioned beforehand in the description, this questionnaire would be processed anonymously, we can not ignore the influence of social desirability. This limitation is often mentioned in this kind of research. In this study particular, it is important to mention the potential effects of social desirability, because of the element of error-oriented covering. We did not find any significant results for this variable. We could ask ourselves the question whether a person that is not motivated to communicate about errors, would report honestly about the covering of errors in this questionnaire. Schell (2012) mentioned that this questionnaire has not been verified with laboratory settings linking error orientations to behavior on the job.
Future Research

Barrick & Mount (2005) believe that in I&O psychology, we tend to overestimate the importance of personality in work-related outcome. In I&O psychology, it is interesting to find criteria for selection of recruits, but until now there has not been overwhelming evidence for direct effects of personality on job-related outcomes. Instead of focusing on which stable traits people have, we would argue that research should focus on what organizations can do to influence more dynamic concepts, like attitudes and employee behaviors, that lead to positive outcomes for the employee and the organization. For instance, we would argue that future research regarding intrapreneurship, should look deeper into the role of general self-efficacy and other attitudes that can be influenced by the organization. There has been considerable support for general self-efficacy being a significant factor for employees to perform, whether on certain tasks or on innovative behavior. What can organizations do to improve the general self-efficacy with their employees?

In this study, we focused on the personality traits and attitudes of individuals and their effect on innovative behavior on the job. Perhaps research could be more conclusive by providing more insight by researching organizational influence on error orientation and innovative behavior. Chen et al. (2016) concluded that in order to facilitate innovative behavior, we should not only focus on intrinsic aspects of employees, but also look at the interaction with the work context. Intrapreneurs that work in a very bureaucratic organization has to take different hurdles and uses a different approach in order to perform innovative work behavior in comparison to an intrapreneur that works in a dynamic work environment (Rigtering & Weitzel, 2013). For researching innovative work behavior, we would suggest to use a more integrative model, combining the effects of intrinsic mechanism of employees, like self-efficacy and error orientation, and situational factors, like supervisory support, autonomy and time pressure on innovative work behavior.

Finally, future research can address some of the methodological issues of this research. Although the EOMS as developed by Schell (2012) had a good psychometric use, there are still some aspects that need scientific verification. What kind of behaviors are associated with the error orientations? It would be necessary to see whether the responses on a questionnaire have a relationship with a pattern of behaviors. Another question that
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Rises is whether an individuals’ error orientation stem from the reactions in their environment towards errors in the past, or are error orientations intrinsic and in line with the values a person has. If so there should be put some research in which values determine error orientation. We also suggest to use a more diverse sample in educational background and industries. It would be interesting to answer the question whether the type of industry has an influence on this research model. For example, in industries like the financial industry employees could have a different attitude towards errors in comparison towards someone working in recruiting. When an employee in finances makes an error, this can results in loss of millions and this will be unavoidably be picked up. In this case the industry determines the orientation towards error and not the intrinsic values of an employee.

Conclusion

The aim of this study was to give more insight in the concept of intrapreneurship because organizations need to find ways to keep up with and anticipate for the needs of the market with the rise of new technology and globalization. We argued that organizations could do more with the human capital they have within the organization. Scientific literature showed the positive effects of error orientation on employee behavior and organizational outcomes. We tried to find out whether there is a link between error orientation and innovative work behavior. On top of that, we integrated individual differences into the research model to see whether these could have an impact as well on the effects of innovative behavior. By using self-report measurement scales with employees from diverse sectors, we found mixed support for the hypotheses. Surprisingly, not every error orientation has its influence on innovative behavior on the job, but we found that having an error orientation that is focused on learning from errors, has a small positive effect on innovative behavior on the job. This effect is strengthened by having a high degree of self-efficacy. We saw that there was confirmation for the relationship between openness to experience and innovative work behavior and observed the significance of studying the concept of general self-efficacy in work-related context. On the other hand, we did not find support for the negative effects of negative error orientations on innovative work behavior. This study built on the findings that organization can reap the benefits from
creating positive error orientations with their employees. Regarding innovative work behavior, organizations can facilitate this by creating a culture where errors are positively viewed and providing organizational support for innovative behavior. There should be support in time, with financial resources and social support. This study showed that the people who demonstrate innovative work behaviors, intrapreneurs, learn from their mistakes and belief in their own ability to perform innovatively. When organizations want to perform more innovatively, they can start by facilitating innovative work behaviors with their employees. Creating the belief in those abilities and leave space for errors.
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References


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Urbano, D., Alvarez, A., & Turro, A. Organizational resources and intrapreneurial activities: an international study.


Het doel van deze studie was om meer inzicht te krijgen in de dynamiek van intrapreneurship. Dit is de introductie en implementatie van een betekennisvolle innovatie voor een bedrijf door één of meerdere werknemers die werken binnen een waardige organisatie. Intrapreneurship groeit aan belang omdat organisaties zich sneller en sneller moeten aanpassen aan de noden van de markt. Deze studie onderzoekt intapreneurship op een individueel niveau door te focussen op de relatie tussen error orientation van werknemers en hun innovatief gedrag en onderzoekt de modererende rol van self-efficacy, conscientieusheid en openheid. De studie heeft zich gebaseerd op drie error orientations: error-oriented learning, error-oriented worry and error-oriented covering. Data was verzameld via een zelfbevragingslijst bij een steekproef van 195 werknemers van verschillende bedrijven en opleidingsachtergronden. De hiërarchische lineaire regressie toonde dat error-oriented learning significant en positief was gecorreleerd met innovatief werkgedrag en dat dit effect positief werd gemodereerd door self-efficacy. De analyse toonde ook een negatief effect van openheid en error-oriented worry op innovatief werkgedrag. Het onderzoeksmodel toonde geen significant effect van error-oriented covering en conscientieusheid. Deze studie draagde bij tot het onderzoeksveld door een relatie aan te tonen tussen error-oriented learning en innovatief werkgedrag. Het bevestigde ook de wetenschappelijke waarde van self-efficacy in werk gerelateerde prestatietellingen. Anderzijds waren de significante effecten van de persoonlijkheidskenmerken eerder klein. Een aanbeveling voor toekomstig onderzoek is om verder te kijken richting de intrinsieke factoren van werknemers in combinatie met situationele factoren in de werkomgeving om innovatief werkgedrag te verklaren. Tot slot vond deze studie gemengde ondersteuning voor de effecten van error orientation op innovatief werkgedrag. Organisaties kunnen profiteren van positieve error orientations te creëren zoals error-oriented learning, bij hun werknamers, opdat ze meer innovatief werkgedrag zouden stellen.
Attachment 2: The Error-Oriented Motivations Scale (EOMS)

To what extent does this apply to you:
1: Not at all
2: A bit
3: Neither a bit, nor a lot
4: A lot
5: Totally

1. I try to learn something from every error I commit.
2. When I make an error, I make it my goal to understand completely why it happened.
3. I deliberately try to find information in my mistakes so I can improve my work.
4. I believe that most errors can be used to improve my performance on a particular task.
5. I apply the information that I learn from my mistakes to my future work.
6. When I make an error, I make sure that I learn something from it.
7. Every time that I mess something up, I think about what I could learn from the situation.
8. I often worry about making mistakes when I am engaged in some task.
9. I believe that errors are definitely things to be worried about.
10. After I mess something up, it is hard to stop thinking about how embarrassing it is to make mistakes.
11. I usually feel embarrassed and foolish when I realize I have made an error.
12. Mistakes make me think about how much I hate messing things up.
13. Most of the time I feel really frustrated and angry when I make an error.
14. I tend to feel a strong sense of concern about making mistakes no matter what I am working on.
15. I do what I can to make sure that no one knows when I make mistakes.
16. I believe that errors can do more harm than good to your reputation when others know about them.
17. I usually try to avoid discussions about my mistakes with my peers.
18. I would rather think about my errors by myself than talk about them with others.
19. I believe that discussing my mistakes usually isn’t worth the time it takes.
20. When I make an error, I find ways to cover it so I don’t suffer any consequences.
21. Covering the mistakes I make helps me avoid potential consequences.
Attachment 3: New General Self-Efficacy scale

5-point Likert-type scale from *strongly disagree* (1) to *strongly agree* (5)

1. I will be able to achieve most of the goals that I have set for myself.
2. When facing difficult tasks, I am certain that I will accomplish them.
3. In general, I think that I can obtain outcomes that are important to me.
4. I believe I can succeed at most any endeavor to which I set my mind.
5. I will be able to successfully overcome many challenges.
6. I am confident that I can perform effectively on many different tasks.
7. Compared to other people, I can do most tasks very well.
8. Even when things are tough, I can perform quite well.
Attachment 4: Innovative Work Behavior

Employees were specifically asked to self-rate the frequency with which they enacted a number of innovative behaviours within their daily work activities. Responses to all items ranged from 1 (“never”) to 5 (“always”).

1. Creating new ideas for difficult issues (idea generation)
2. Searching out new working methods, techniques, or instruments (idea generation)
3. Generating original solutions for problems (idea generation)
4. Mobilizing support for innovative ideas (idea promotion)
5. Acquiring approval for innovative ideas (idea promotion)
6. Making important organizational members enthusiastic for innovative ideas (idea promotion)
7. Transforming innovative ideas into useful applications (idea realization)
8. Introducing innovative ideas into the work environment in a systematic way (idea realization)
9. Evaluating the utility of innovative ideas (idea realization)
Attachment 5: BFI

Instructies:
De volgende stellingen hebben betrekking op uw opvatting over uzelf in verschillende situaties. Het is aan u om aan te geven in hoeverre u het eens bent met elke stelling, waarbij u gebruik maakt van een schaal waarop 1 helemaal oneens betekent, 5 helemaal eens betekent, en 2, 3 en 4 zijn beoordelingen daartussenin. Klik achter elke stelling een getal aan in de vakjes op de volgende schaal:

Er zijn geen 'goede' of 'foute' antwoorden, dus selecteer bij elke stelling het getal dat zo goed mogelijk bij u past. Neem de tijd denk goed na over elk antwoord. Klik op 'Verder' onder aan de pagina wanneer u klaar bent met het beantwoorden van alle vragen

Ik zie mezelf als iemand die...

... Spraakzaam is.
... Geneigd is kritiek te hebben op anderen.
... Grondig te werk gaat.
... Somber is.
... Origineel is, met nieuwe ideeën komt.
... Terughoudend is.
... Behulpzaam en onzelfzuchtig ten opzichte van anderen is.
... Een beetje nonchalant kan zijn.
... Ontspannen is, goed met stress kan omgaan.
... Benieuwd is naar veel verschillende dingen.
... Vol energie is.
... Snel ruzie maakt.
... Een werker is waar men van op aan kan.
... Gespannen kan zijn.
... Scherpzinnig, een denker is.
... Veel enthousiasme opwekt.
... Vergevingsgezind is.
... Doorgaans geneigd is tot slordigheid.
... Zich veel zorgen maakt.