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**ERRORS IN ORGANIZATIONS:
THE IMPACT OF ERROR ORIENTATION ON WORK-RELATED PERSONAL
DEVELOPMENT**

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Resumo

As práticas de gestão de erros implementadas com sucesso ajudam a melhorar o desempenho global da empresa e, além disso, aumentam a aprendizagem e a exploração a nível individual. Além disso, o construto de orientação para o erro refere-se à forma como os indivíduos lidam e pensam sobre os erros no trabalho. Uma vez que cada organização é confrontada com erros, é essencial geri-los activamente e tirar partido das suas consequências positivas, a fim de promover a aprendizagem e o desenvolvimento contínuos dentro de uma organização. Esta investigação, que se baseia nos dados recolhidos através de um inquérito a 209 empregados internacionais, revelou que a orientação para o erro está indirectamente relacionada com o job crafting através da sua relação com a iniciativa de crescimento pessoal. Além disso, as funções de liderança de fornecer feedback, formação e desenvolvimento da equipa, desafiar a equipa, bem como apoiar o clima social, têm um efeito negativo na relação da orientação para o erro com a iniciativa de crescimento pessoal. Finalmente, o estudo mostra que o efeito mediador da iniciativa de crescimento pessoal na relação entre a orientação para o erro e o job crafting existe especialmente quando as referidas funções de liderança são baixas.

JEL classificação: M53; O15

Palavras-chave: orientação para o erro, criação de emprego, iniciativa de crescimento pessoal, liderança

Abstract

Successfully implemented error management practices help to improve the overall company performance and furthermore increase learning and exploration on the individual level. Moreover, does the construct of error orientation refer to the way how individuals cope with and think about errors at work. Since every organization is confronted with errors, it is essential to manage them actively and take advantage of their positive consequences in order to foster continuous learning and development within an organization. This research, which is based on the data collected through a survey among 209 international employees, revealed that error orientation is indirectly related to job crafting through its relationship with personal growth initiative. Furthermore, the leadership functions of providing feedback, training and developing the team, challenging the team as well as supporting a social climate, have a negative effect on the relationship of error orientation on personal growth initiative. Lastly, it shows that the mediation of personal growth initiative on the relationship between error orientation and job crafting exists especially when the latter leadership functions are low.

JEL classification: M53; O15

Keywords: error orientation, job crafting, personal growth initiative, leadership

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1. Introduction

An organization is constantly confronted with errors and at the same time pressured to stay fit and adapt to the economic environment. Thus, it would be beneficial for an organization if both challenges could be tackled simultaneously and concurrently support each other. Since innovation and incremental improvement are the key to competitiveness and success, exploration through trial-and-error is indispensable and almost on the daily agenda. Innovations are simply not possible without making mistakes as the process of innovating includes actions in unknown environments (Frese & Keith, 2015). Therefore, instead of trying to prevent errors and their supposedly negative outcomes constantly, they should rather be accepted and dealt with effectively. Both approaches pursue the same goal of reducing negative error consequences but the procedure of how to get there as well as how errors are being addressed, differs a lot (Van Dyck, 2000). Error prevention involves the strict rejection of any kind of error, while error management is based on an active approach towards them, including the maximization of positive error consequences. Scholars have proven that successfully implemented error management practices have a positive effect on the overall company performance (Van Dyck, Frese, Baer & Sonnentag, 2005) and furthermore, encourage learning and exploration on an individual level (Dormann & Frese, 1994).

In accordance with this, a personal disposition that plays a central role in this work is error orientation. In contrast to the organizational perspective, it refers to a concept that presents the way how individuals cope with and think about errors at work (Rybowiak, Garst, Frese, Batinic, 1999). A positive error orientation in combination with the ability to reflect one's errors and open communication about them, has a positive influence on the personal job performance (Frese & Zapf, 1994). Thus, errors generally serve as a great opportunity for learning and moreover foster the development of competences in the long term (Bauer & Mulder, 2007).

This research will focus on the impact of error orientation on the work-related personal development, constituted by personal growth initiative and job crafting. Furthermore, the role of leadership functions within this relationship is taken into account. Especially when certain practices of error management and values are part of a company's cultural system, it is closely related to how managers are setting examples and how they reinforce desired behaviors and beliefs among employees (Schein, 1992a). From a practical perspective, error orientation in organizations, continuous development of the workforce as well as the role of leadership are very timely topics. All three areas have given rise to new relationships at work, in which

employees are expected to integrate personal perspectives, while supervisors should lead by example and at the same time collaborate on the detection and correction of errors to achieve shared goals. Therefore, this work is based on the assessment of 209 international employees who took part in an online survey directed at the personal perception of their work environment and current managers. The first part of this work focuses on the theoretical background of the variables, resulting in the presentation of the main hypotheses. Furthermore, the results will be displayed, discussed and practical implications on how to foster individual error orientation in organizations are presented. Lastly, limitations and ideas for future research are pointed out, hoping to motivate researchers to follow up on this topic.

2. Theoretical framework and development of hypotheses

The following chapter will cover the introduction, definition, and explanation of all the assessed variables in this research, including the development of the independent variable of error orientation as well as the dependent variables – personal growth initiative (PGI) and job crafting. Lastly, four important leadership functions will be introduced. Their consequences, as well as moderating effects will be argued by referring to existing research, leading to the derivation of three main hypotheses.

2.1 Errors and the importance of managing them in an organizational context

Errors happen and it is natural that they happen to everybody, thus, neither routinization nor a higher degree of qualification can protect a company from making errors (Frese & Keith, 2015; Prümper, Zapf, Brodbeck & Frese, 1992). James Reason (1990) from the University of Manchester defines ‘error’ as a generic term that “encompass[es] all those occasions in which a planned sequence of mental or physical activities fails to achieve its intended outcome, and when these failures cannot be attributed to the intervention of some change agency” (p. 9). In turn, it implies that errors are “unintended deviations from plans, goals, or adequate feedback processing as well as an incorrect action that results from lack of knowledge” (Van Dyck et al., 2005, p. 1229). Both definitions refer to so called *action errors* and need to be differentiated further and distinguished from other types of errors. For example the context can be crucial for the definition and errors need to be separated from conscious violations and intended deviations from any standard, norm or practice (Frese & Keith, 2015; Reason, 1990; Van Dyck et al., 2005). Errors of judgement (cognitive biases) and the process of false decision making through heuristics should also be considered separately (Weber & Johnson, 2009). Lastly, a clear differentiation needs to be made between error and failure. Failure can be a negative consequence of an error, nevertheless, an error can also occur in a safe environment where it is detected quickly, without bringing any harm and thus preventing failure (Frese & Keith, 2015).

According to Reason (1990), there are three different types of action errors – (a) slips and lapses, (b) rule-based mistakes and (c) knowledge-based mistakes – which can be applied to Rasmussens’ (1986) three performance levels (skill-based, rule-based and knowledge based). Slips and lapses belong to the skill-based level and are errors that result from failure in the execution, while mistakes in general describe failures in the judgmental and/or inferential process, meaning, already a wrong intention was formed. Furthermore, errors that occur at the skill-based level usually happen while an individual is engaged in a problem-solving process;

rule-based and knowledge-based performance, on the other hand, can only be observed *after* an individual became actually aware of a problem. This implies, that slips and lapses generally precede the problem detection while mistakes occur during the following attempts of finding a solution. All three performance levels in which errors and mistakes can happen are related to the process of learning (Rasmussen & Vicente, 1989), but the relationship between errors and learning is different for each performance level and will be explained in more depth at a later point in this study.

Since errors are based on the unintentional nature of deviation, they often lead to the unpleasant feeling that one should have known better. In a work-related context, they are often not reported or dealt with, as individuals might fear negative consequences. A good way to counteract such behavior, is the implementation of error management which distinguishes between the consequences of an error and the error itself (Van Dyck et al., 2005). This implies the creation of a safer environment for employees to report and deal with errors due to the reduction of negative and the increase of positive consequences through organizational structures or training (Frese, 1991; Van Dyck et al., 2005). This approach is based on the assumption, that human errors can never be completely prevented (Reason, 1990) and therefore it needs quick responses or solutions to an erroneous situation (Frese, 1991). If an open approach towards errors is present, it ensures that errors are being detected and reported in a short time which allows effective handling of it, minimizing negative consequences and allowing learning to happen (Frese, 1991). A study by Thomas (2004) in cooperation with Southeast Asian airlines revealed the importance of being prepared and being open towards the occurrence of errors. Crews that were prepared for any eventualities and able to identify problems easily, were also able to manage errors effectively once they occurred. A contrary approach is the practice of error prevention, a strategy mostly attributed to larger entities with high level of bureaucracy (Rybowiak et al., 1999). In this case, negative error consequences are solely being reduced by trying to avoid errors in general and at any cost (Van Dyck et al., 2005). If a company sets the goal to not make any errors, monitoring systems need to be implemented and due to a high degree on planning activities, there will be less action and little risk taking (Peters, 1988). This approach even may increase negative effects, as employees are not expecting errors and are trusting the false belief that there will never be any errors in the future. Such attitude can easily result in being completely overwhelmed if an error then occurs after all (Reason, 1990), as it is more difficult to discern unanticipated events (Hofmann & Frese, 2011). In organizations with such a negative error approach, it can also happen that errors are tried to be concealed and thus, there will neither be a learning from it on an individual

nor on a team or organizational level (Rybowiak et al., 1999). Nevertheless, some errors are just redundant and it makes sense for organizations to utilize both approaches – error management and error prevention, even if this assumes disparate underlying assumptions (Frese & Keith, 2015).

Organizational practices, including communicating about errors, sharing error knowledge, helping in error situations, analyzing errors, coordinating effective error handling and quick error detection have been proven as the most important practices in successful error management (Van Dyck et al., 2005). For example, if employees are aware of the fact that errors can and will happen, reciprocal monitoring and observing for potential errors will facilitate faster error detection (Bell & Kotzlowksi, 2011) and enable employees to provide feedback to each other. However, error detection will be lower in more complex tasks, compared to simple ones (Zapf, Maier, Rappensperger & Irmer, 1994). For example, in simple typewriting activities, the rate of detected errors was very high, even if the writer was blindfolded (Rabbitt, 1978). Contrary, only about half of the errors were detected by aircraft crew members fulfilling complex tasks within a dynamic environment (Thomas, 2004). Errors involving wrong judgement or wrong preceding plans are much harder to identify (Zapf et al., 1994). Furthermore, error detection, but also prevention, can be moderated through sharing previous experiences with errors and overall error knowledge (Frese & Keith, 2015). A quick error detection is essential in order to decrease negative consequences and can be influenced by open communication and help of team members. Communication in general is a very essential characteristic of teams and plays an important role in error management (Van Dyck et al., 2005). Failure in communication within or between teams and thus a lack of shared information can trigger team or even organizational errors (Bell & Kotzlowksi, 2011). If employees are able to talk freely about their work and the errors they make, a better shared understanding of them will be the outcome. Some companies support error communication through systematic organizational structures or events. An American accounting software company, for example, gives special awards for the best failures and even holds “failure parties” to allow non-formal and free interaction on this topic. Aligning with this, Edmonson (1999) investigated that a working climate of safety and supportiveness enabled team members to embrace errors into their daily work. In contrast to that, some organizations might suppress open communication through the punishment of errors, which leads to the hesitation of speaking about errors, followed by a negative attitude towards them. But also missing organizational structures that support safety to speak up or make mistakes can hinder communication. For example, if an employee feels like his or her job is at risk, the probability

of not speaking about an error or even covering it up, might rise. Additionally, general interaction and knowledge about the topics that colleagues work on, might lead to an increase of attentiveness towards co-workers working in error-prone situation (Van Dyck et al., 2005). Co-workers' help might also be decisive whether errors will escalate into more errors or if they are detected and even corrected at an early stage. For example, in crew resource training, crew members of an aircraft have to attend joint training sessions with pilots, in order to minimize errors by facilitating open communication between crew and cockpit but also in order to learn how to detect errors and observe a protocol of error handling (Kanki, Anca & Chidester, 2019). On the other side, the rate of errors can also increase with the presence of others due to social loafing and distraction through others (Hollenbeck, Ilgen, Tuttle & Sego, 1995).

Error management can be applied to an organizational level by referring to the concept of error management culture (cf. Klein, Dansereau & Hall, 1994). It is often the companies with more entrepreneurial cultures that are rather positively attuned towards errors and the learning effect resulting from them (Rybowiak et al., 1999). Nevertheless, in this research the focus will be on the individual level, referring to the construct of error orientation. Generally, error orientation describes how individuals cope with and how they think about errors at work (Rybowiak et al., 1999). According to Lazarus and Folkman (1984) it can be conceptualized as a coping concept whereas the primary appraisal is associated to how negatively errors are being perceived by individuals and how people anticipate that errors will happen. The secondary appraisal then refers to how individuals cope with errors. For example, coping with errors can be demonstrated through covering them up, instead of openly communicating them or by calming oneself down in an erroneous situation, actively dealing with it or learning from it. On the basis of this concept, Rybowiak and colleagues (1999) also established six different facets of error orientation; error competence, learning from errors, error risk taking, error competence, error anticipation, error strain as well as covering up. Error competence is directed at short-term goals, by knowing how to deal with an error immediately. In contrast to that, learning from errors rather aims at long-term goals, learning what to do better or differently in the future. Error risk taking means that somebody is generally flexible and open towards errors while error anticipation refers to having a realistic attitude towards them, expecting them even in a field of expertise. Error strain and covering up errors are both negatively related to error orientation and rather describe behaviors typically for error prevention approaches. Error strain describes the fear of errors and their consequences to happen. Covering up errors is also a technique used mostly by people that see errors as a threat, which mostly refers to social contexts. Thus, error orientation may be an important organizational background variable as it

relates to general individual openness towards error management practices on an organizational level.

2.2 The benefits of errors and mistakes

Now, why is it important to implement error management practices if one wants to foster learning and development among employees? In general, the theory of organizational learning suggests that it needs a positive attitude towards errors as well as an active approach of dealing with them (Senge, 1990). Furthermore, reliable and robust organizations are built on key processes of well-organized and structured learning from failure (Weick & Sutcliffe, 2001). Scholars in this field mostly agree that learning can be enhanced through making and correcting errors. Thus, Argyris und Schön (1978) simply define learning as a process determined by the detection and correction of errors. This again can be divided in a single-loop learning process and a double-loop learning process. Single-loop learning refers to a process where an error is simply being observed and afterwards corrected or eliminated, whereas double-loop learning also includes the reconsideration of the whole process that led to the erroneous situation (Argyris, 1977). This seems to be a problem in many organizations, as they are often able to detect and correct errors (single-loop learning), but fail to unearth the causes of errors as well as the required changes for future prevention and improvement (Carmeli & Sheaffer, 2008). Even if errors are simply being seen as direct negative feedback, they can be of utmost value for an individual in order to change one's course of action and improve behaviors to achieve an ultimate goal (Van Dyck et al., 2005). This view of seeing errors as feedback also goes along with other theories that propose feedback as an important antecedent for learning (e.g. Kluger & DeNisi, 1996). Especially action errors are the ones that are elemental for individual learning as the development of humankind is very similar to the simple process of trying something new, making errors and then trying again to improve (Frese & Keith, 2015). Going back to Reasons (1990), three basic error types, it is known that learning from mistakes and errors takes place differently on each action-level (Rasmussen & Vicente, 1989). Regarding the skill-based level, necessary sensorimotor patterns develop due to constant feedback and clear boundaries of acceptable performance. Learning from rule-based mistakes describes the development of important knowhow and "best practices" that help to derive cues for action according to the law of least effort. When it comes to the process of problem solving on the knowledge-based level it is important to experiment and try out alternatives to update one's mental models and be able to testify hypotheses. Nevertheless, all three levels refer to a learning process based on

experiences. In general, errors may actually inspire employees to develop a broader understanding of an erroneous situation and think about what caused the actual error (Van Dyck et al., 2005). Thus, error detection as well as the reflection and correction of them is essential in the process of learning (Argyris & Schön, 1978). Then again, the improvement of self-reflection among employees can contribute for a company to be more action-oriented, innovative and experimental (Reason, 1990). In addition, Van Dyck and colleagues (2005) propose that especially open communication as part of error management encourages learning to happen. If nobody would talk about errors openly, individuals would not get any insights about other peoples' erroneous behavior as well as the joint reflection of it. Open discussion about errors also allows team members to develop a more sophisticated understanding of the situation that may have caused the error to happen. This may actually lead to an increase of exploration and experimentation among employees (Dormann & Frese, 1994) which may also entail more innovations. Furthermore, a positive error orientation has shown relations towards a higher degree of reporting errors (Gold, Gronewold & Salterio, 2014) as well as feeling more responsible for them (Gronewold & Donle, 2011), which are both preconditions for learning from errors to happen (Frese & Keith, 2015). Heimbeck, Frese, Sonnentag, and Keith (2003) conducted a research training design that explicitly encouraged the participants to make errors and learn from them afterwards. It was concluded that learning takes place when individuals are stimulated to learn from errors, as long as they think metacognitively (e.g. planning, monitoring, evaluating) on their errors and as long as there is no negative emotional impact (Keith & Frese, 2005). According to social learning theory (Bandura, 1977), individuals will rather adapt new behaviors if they experience rewarding effects instead of unpleasant or punishing situations. Thus, reducing negative consequences and punishment for erroneous behavior while supporting positive outcomes, is an essential part within successful error management (Van Dyck et al., 2005).

2.3 Work-related personal development

In general, the concepts of learning, development, but also training overlap at certain points. Learning can be seen as an experience that brings relatively permanent changes in knowledge, skills, or attitudes, while part of a training consists of organized efforts to assist the process of learning through instructions (Birdi, Allan & Warr, 1997). Work-related personal development activities on the other hand involve many forms of learning and training, aiming at a long-term perspective and sometimes even extending into career planning and personal progress reviews

(Noe, Wilk, Mullen & Wanek, 1997). For example, experiential learning theories propose that learning is a process that takes place when individuals engage in challenging situations and subsequently reflect the outcomes of this experience (e.g., Marsick & Watkins, 1990; Rogers, 1969). Cognitive theories on the other hand, such as the learning theory by David Ausubel (1968) suggest that continuous, accumulated information obtained by experience and the connection with existing concepts will lead to cognitive growth and learning. In general, learning from experience is very broad but can be divided into informal and incidental learning in contrast to formal learning (Watkins & Marsick, 1992). Informal learning, which refers to any type of learning and incidental learning, which can be a by-product of other activities, are learning processes that derive from experiences and take place outside of formal structures.

Personal development on the other hand is being argued to be a lifelong process of gradual, incremental improvements (Lievegoed, 1980) and furthermore, focuses on change, innovation, and includes learning (Collin, 1994). As part of it, the principle of self-development is defined as a self-initiated process of learning (Antonacopoulou, 2000) and according to London, Larsen, and Thisted (1999) focuses on actions that promote further career development through actions such as setting goals for performance improvement, expressing more commitment, engaging in career planning, as well as learning and acquiring new skills and knowledge. More attention has also been given to employees' self-initiated pursuits of voluntary development activities (Birdi et al., 1997). This presumes, that individuals are in a position to decide for themselves what and how they want to learn and develop, supposing that employees themselves need to discover the need to develop further and pursue the willingness to learn (Antonacopoulou, 2000). In the motivation-based theory of skill acquisition by Kanfer and Ackerman (1989), it is proposed that individuals bring additional efforts to improve and develop new skills, through the motivation of exceling their current knowledge. For example, an important component of the managerial learning process involves actively exploring new possibilities (Politis, 2005) and reflecting them critically in order to benefit and learn from them (Cope, 2003). Existing research (e.g. Boydell, 1976; Cunningham, 1999) also agrees with the proposition that individuals cannot be forced to learn and develop without their will. Only if personal growth is traced back to personal intention, it means that individuals are fully aware of the occurring change and are actively and willingly involved in this process (Robitschek, 1998). Robitschek (1998) refers to this phenomena as *personal growth initiative (PGI)*, which is the "active, intentional engagement in the process of growth" (p. 184). Furthermore, personal growth initiative comprises several cognitive components such as self-efficacy, including beliefs, attitudes, and values that support personal development and growth. For example, a

person might think they know how to change things in their life, they actually want to be changed, which is an expectation that belongs to self-efficacy (Bandura, 1977). Nevertheless, PGI goes beyond that, as it also includes behavioral components that involve the implementation of those thoughts across different growth domains (Robitschek, 1998). Thus, it can be seen as a metacognitive construct as well as the awareness and control of intentional growth processes. In general, personal initiative is an active concept which entails aspects of proactive and self-starting behaviors (Frese & Fay, 2001) and therefore plays an essential part in the individual's development process. For example, it also enables people to better cope with job difficulties more actively, such as stressors or career changes (Frese & Fay, 2001). Furthermore, if individuals pursue development goals that are intrinsically motivated, they will experience higher well-being than if they pursue extrinsically motivated goals, such as financial bonuses (e.g. Deci & Ryan, 1985). Nevertheless, it is also argued that intrinsic motivation to function can either be facilitated or impeded by the social context and situational conditions (Deci & Ryan, 1985). Therefore, it is again important that employees feel safe and should not fear to be punished if errors occur while acting proactively (Frese & Fay, 2001). This observation led to Van Dyck's (2005) proposition, that a company culture open to errors will probably enhance general personal initiative and experimentation. In addition, failure in the process of initiating stimulates people even to take the initiative again (Deichmann & Van den Ende, 2014), possibly leading to a circle of failure and further initiative-taking. Lastly, findings by Rybowskiak and colleagues (1999) imply that constantly expecting errors to happen (error competence) and moreover learning from them will enhance individuals' abilities to manage unexpected events and show more proactive behaviors as well as personal initiative in the future.

To follow on, Robitschek (1998) also believes that people who show higher personal growth initiative and who are, for example, dissatisfied with their choice of profession would actively engage in self-exploration in order to find a better fit of occupation. Thereupon, the process of self-initiated change that employees engage in, with the aim of aligning their work with their personal preferences, motives and passions, is called job crafting (Wrzesniewski & Dutton, 2001). It is important to notice though, that job crafting is only about changing certain aspects at work, not redesigning one's job as a whole. Job crafting may appear in different forms, such as (1) employees may change task-related aspects of their job, (2) they may alter certain relationships they have at work, or (3) they may change cognitions about certain aspects, which is aimed at increasing the personal significance of one's work (Wrzesniewski & Dutton, 2001). Changing their job's task boundaries, for example includes making alteration

to the scope of work, lowering production numbers, or focusing on other preferred tasks in general. Secondly, changing the relational boundaries of job tasks, for example, includes improving the quality of interaction, or choosing to interact less with people that psychologically stress oneself. Lastly, changing the cognitive boundaries of one's work may lead to a new perception of the job in terms of either just seeing it as a number of work tasks or seeing it as an integrated whole. Furthermore, an important part of job crafting is the perceived feeling of control, which again is an important antecedent for improved performance (Frese, 1987). In contrast to that lies the concept of learned helplessness by Seligman (1975) which implies that the lasting feeling of non-control leads to a decrease of individual goal-development, because the knowledge or the perception that it has no effect on their environment anyways, is predominant. According to the job characteristics model (Hackman & Oldham, 1980), congruence within work environments, meaning between job characteristics and characteristics of the jobholder, should be paid more attention to as they favor desirable outcomes such as higher internal work motivation, growth and general job satisfaction as well as work effectiveness.

Personal growth initiative and job crafting actually resemble one another quite a lot, especially since job crafting involves general proactivity. For example, Petrou, Demerouti, Peters, Schaufeli, and Hetland (2012) also define job crafting as a proactive behavior shown by employees which includes reducing demands, seeking resources as well as seeking challenges. Nevertheless, personal growth initiative focuses on overcoming barriers or solving problems in order to develop further, while job crafters seek to increase the meaning of their work, improve their person-job fit (cf. Hackman & Lawler, 1971) and maybe even change their identity within the organization (Wrzesniewski & Dutton, 2001). Furthermore, PGI comprises proactive behavior towards learning, while work-related learning in turn is being argued to help employees in more actively crafting their work environment (Battistelli, Odoardi, Vandenberghe, Napoli, & Piccione, 2019). A research by Kulik, Oldham and Hackman (1987) which focuses on a related construct of PGI, named *personal growth need* comes to a similar conclusion. They revealed that people with a high need for personal growth, will rather attempt to improve the fit with their working environment, compared to people with low personal growth need. Employees with high personal growth need, working in a routinized job, might simply take on more responsibilities than what is actually expected from them. For example, an employee in a manufacturing organization might already perform their own quality check before passing the product on to the quality control department as part of the regular production process. Kulik and colleagues (1987) also suggest that the redesign of one's own job does not

necessarily need management involvement, but rather happens on the basis of personal initiative. Thus, one of the central antecedents for job crafting is the personally initiated alteration of job characteristics and general proactive working behaviors (Tims, Bakker & Derks, 2012).

Summarizing it, a safe environment as part of error management and high error orientation will most certainly influence the proactivity of employees (Frese & Fay, 2001) and enhance experimentation and personal initiative (Van Dyck et al., 2005). Furthermore, it is believed that learning from errors will improve the management of unexpected events and thus improve proactive behaviors and personal initiative (Rybowiak et al., 1999). Personal initiative on the other hand plays an essential role within job crafting behaviors (cf. Battistelli et al., 2019; Petrou et al., 2012). Based on these arguments, we propose the following hypothesis:

H1: Personal growth initiative mediates the positive effect of error orientation on job crafting.

2.4 Leadership functions

The functional leadership theory by McGrath (1962) suggests that the leadership role is “to do or get done whatever is not being adequately handled for group needs” (p.5). According to this theory, team leadership is connected to team need satisfaction, with the overall aim of facilitating team effectiveness. For example, a study by Schaubroeck, Lam, and Peng (2011) revealed that leader behavior generally influences trust, leading to potency, improved psychological safety climate, and better team performance. Anybody from inside or outside the team who claims responsibility for a team’s needs can be seen as someone taking up the team leadership role (Morgeson, DeRue & Karam 2010). In order to fully understand the process of team leadership though, one must also comprehend the essence of team functioning in general. Team work usually consists of recurring cycles of interdependent interactions (Kozlowski, Gully, McHugh, Salas & Cannon-Bowers, 1996). Those recurring cycles again can be divided into two main phases; the transition phase, which focuses primarily on the planning and evaluating of activities to reach the team goal or objective, and the action phase, which is the period of time when teams actually perform activities directly leading to goal accomplishment (Marks, Mathieu & Zaccaro, 2001). During both phases, team needs will emerge that should be satisfied. This is where leadership functions get involved, and thus support the team to function more effectively (Morgeson et al., 2010). Based on a taxonomic approach, Morgeson and colleagues (2010) developed 15 key leadership functions, differentiated in transition and action

phase. In this research the focus will be on four of those leadership functions: Provide feedback, train and develop the team, challenge the team and supporting a social climate. Since leadership behavior and organizational as well as cultural beliefs within an organization are very much intertwined (Schein, 1992a), it is proposed that those leadership functions will generally moderate the direct effect of error orientation on personal growth initiative as part of work-related personal development.

For a leader, it is essential to provide regular feedback to one's team, as feedback is essential for the proper functioning, maintenance, but also further development of a social system (Katz & Kahn, 1978). Providing feedback allows teams to assess their past as well as current actions and adapt if needed in order to assure future success (Morgeson et al., 2010). The knowledge about the personal performance is directly affected by the amount of received feedback (Kulik et al., 1987). Especially in erroneous situations it is essential to provide feedback, which can be comprised in communication about errors, one of the central practices in error management (Van Dyck et al., 2005). Also errors themselves can present necessary information on where skills and knowledge need to be improved (Ivancic & Hesketh, 1995), which make them an essential part of the personal learning and development process. Thus, from a functional leadership perspective, feedback processes are necessary as they promote the further development of the team over time. A study among teams within the pharmaceutical and medical products industry (Gibson & Vermeulen, 2003) revealed, that leaders who engage in performance management activities, including feedback on performance, helped to facilitate extensive learning behaviors among team members. Furthermore, implementing feedback and performance management processes, will raise awareness among team members for performance capabilities, at the same time encourage them to reassess current working methods and thus support the team in better adapting to a dynamic environment (Kozlowski et al., 1996). It is argued that these outcomes are important antecedents within the process of work-related personal development and hence lead to the following hypothesis:

H2a: The leadership function of providing feedback increases the positive effect of error orientation on personal growth initiative.

Training and developing the team is a leadership function that mostly comes to action during the transition phase, when deficiencies within the team performance or on an individual level are being identified (Morgeson et al., 2010). Team members need to have the skills and capabilities to fulfill expected tasks and workloads. Therefore, it is generally necessary for the

team to learn and apply new interpersonal team practices which enable a better and more effective team performance, but also enhances individual task performance (Morgeson et al., 2010). This means that to a certain extent, it lies within the responsibility of the leader to provide adequate instructions or trainings, but also to encourage and motivate team members to educate themselves with available materials.

For example, Kozlowski and colleagues (1996) researched on the developmental aspects of the leadership role and revealed that establishing individual skill proficiency, improving task-related knowledge as well as developing team members' self-efficacy played a central role. Thereupon, other research (e.g. Hong, Raub, Liao & Han, 2016; Lisbona, Palaci, Salanova & Frese, 2018) confirms that self-efficacy has a positive impact on personal initiative and moreover leads to a higher performance (Lisbona et al., 2018). Furthermore, Noe and Wilk (1993) revealed that situational support is associated with self-development and that individuals are more likely to engage in development activities if their leader also supports their efforts in personal development. In this sense, it is being hypothesized that training and development support through leaders moderates the positive effect of psychological error management climate on personal growth initiative:

H2b: The leadership function of training and developing the team increases the positive effect of error orientation on personal growth initiative.

The leadership function of challenging the team is predominant during the action phase and involves confronting assumptions, processes and methods of the team as well as challenging their task performance (Morgeson et al., 2010). It is important that team members continuously question what they are doing, scrutinize the usefulness of their way of thinking and furthermore, are prone to exploring alternative ways of working. According to a study by Oldham and Cummings (1996), manufacturing workers produced the most creative outcomes, when they were working on challenging and complex jobs, while being supervised in a supportive and noncontrolling way. Hackman and Oldham also argue in their job characteristics model (1980) that work-related personal growth is only possible if work is challenging and calls for creativity and a variety of different skills. An existing theory actually assumes that the more challenging a situation or task is, the higher is the value for personal development (Ohlott, 2004). Crawford, LePine, and Rich (2010) also meta-analyzed 64 research samples and found out that more challenges correspond with higher engagement. Furthermore, work that is challenging may enhance employees' perceived meaningfulness of

the job experience through higher investments of physical, cognitive and emotional resources (Brown & Leigh, 1996). Moreover, challenging tasks have shown to increase intrinsic motivation (Gagné, Senecal & Koestner, 1997) which enhances self-starting activities and generating proactive goals (Parker, Bindl & Strauss, 2010). This can imply, that employees who have higher intrinsic motivation and proactively generate goals will also take more initiative in their work. Based on the arguments above, the following hypothesis is suggested:

H2c: The leadership function of challenging the team increases the positive effect of error orientation on personal growth initiative.

In order to support a social climate of trust and cooperation, leaders are engaged to address personal issues and the general social environment of a team, if otherwise these issues could influence the performance of the team (Morgeson et al., 2010). A study by Campion, Medsker, and Higgs (1993) pointed out the importance of social interactions and support among team members, as it has a positive effect on team productivity and effectiveness. Kim, Min, and Cha (1999) did a research with project team leaders that supported their teams in solving conflicts, building cohesion, setting the team climate, and demonstrating consideration and empowerment of team members. They revealed a positive relationship between such supportive team leaders and the overall performance of the team. Brown and Leigh (1996) reported similar results; according to their research, climate perceptions of support and contribution significantly related to several work performance measures, such as higher job involvement. A cooperative working climate in general reduces competition between co-workers (Szulanski, 1996). According to the research by Collins and Smith (2006), a social climate of trust supports knowledge exchange and combination, leading also to a better company performance. If employees perceive that the organization accommodates their psychological needs at work, they will more likely invest more time and energy, hence leading to a raise in employee effort (Brown & Leigh, 1996). Employee effort in turn, can be described as motivation that is being translated into accomplished work (Parsons, 1968), which relates much to the construct of personal growth initiative.

Edmondson (1999) proposed a team learning model which shows that supportive team structures also enable a climate of psychological safety. A feeling of safety is essential for employees if they want to work proactively (Frese & Fay, 2001), knowing that proactivity in turn is critical for employees' further career development (Presbitero, 2015). Psychological safety climate describes the perception that individuals have regarding the consequences of

taking interpersonal risks in a certain context, such as their workplace for example (e.g. Edmondson, 1999). Thereupon, Baer and Frese (2003) defined a psychologically safe climate as “a work environment where employees are safe to speak up without being rejected or punished” (p. 50). It is a climate that involves a high amount of interpersonal trust and mutual respect within the team, so team members can feel comfortable the way they are (Edmondson, 1999). Edgar Schein (1992a) announced four elements that are essential for a psychologically safe working environment, which are 1) opportunities for training and practice, 2) coaching and reward for efforts in the right direction, 3) norms that legitimize the making of errors, and 4) norms that reward innovative thinking and experimentation. Furthermore, psychological safety can support explanations for several team-related behaviors, as it generally enhances group processes (Edmondson, 1999). Such as the sharing of information and knowledge (Collins & Smith, 2006), lower turnover and improved team performance (Edmondson & Lei, 2014), or coming up with alternative problem solving approaches and taking the initiative to innovate (Baer & Frese, 2003). These results also go along with Schein’s (1992b) proposition, that in order to raise motivation to learn something new, people need to feel psychologically safe. According to Garvin, Edmondson and Gino (2008), psychological safety should generally be part of a supportive learning environment, because employees should not fear negative consequences when disagreeing with superiors, asking naive questions, owning up to mistakes or stating minority opinions. Edmondson (1999) also argues that psychological safety should facilitate learning behaviors, as it diminishes the concern of others’ reactions towards potentially embarrassing situations that often occur in the process of learning. Instead of feeling afraid or embarrassed, it is important to feel safe and comfortable when expressing thoughts and exploring new terrains. Additionally, psychological safety climate will encourage reflexive team behavior and open discussions (West & Richter, 2008). This goes along with Van Dyck and colleagues’ (2005) argumentation that an open discussion about errors allows the development of shared knowledge about the latter, conceding for learning to happen. Lastly, Edmondson revealed a significant effect of psychological safety climate on general self-reported team learning behaviors (Edmondson, 1999) as well as on learning from failures (Edmondson & Lei, 2014). If individuals feel safe to do so they will admit mistakes, ask for help and provide feedback more often (Edmondson & Lei, 2014). Concluding, a social climate, supported by leaders has proven effects on many learning- and development-related behaviors. Therefore, it is hypothesized:

H2d: The leadership function of supporting a social climate increases the positive effect of error orientation on personal growth initiative.

Hypothesis 1 of this research suggests that the effect of error orientation on job crafting will be mediated by the construct of personal growth initiative. Furthermore, hypotheses 2 predicts the impact of four leadership functions (train and develop, provide feedback, challenge, and support social climate) on the relation between error orientation and personal growth initiative. Both linkages will be demonstrated in the overall theoretical model presented in Figure 1. Furthermore, Preacher, Rucker and Hayes (2007) have identified models of this configuration as moderated mediation models. They also indicate that individual testing of the paths, such as hypothesis 1 and 2, would be insufficient for establishing moderated mediation effects. Therefore, a final hypothesis will be provided which specifies the moderated mediation effects presented in the research model:

H3: The mediation presented (H1) exists especially, when (a) leaders' feedback, (b) training and development provided by leaders, (c) challenges by leaders and (d) leaders support for a social climate are also high.

2.5 Research Model

Considering the latter hypotheses, the following research model was proposed and tested.

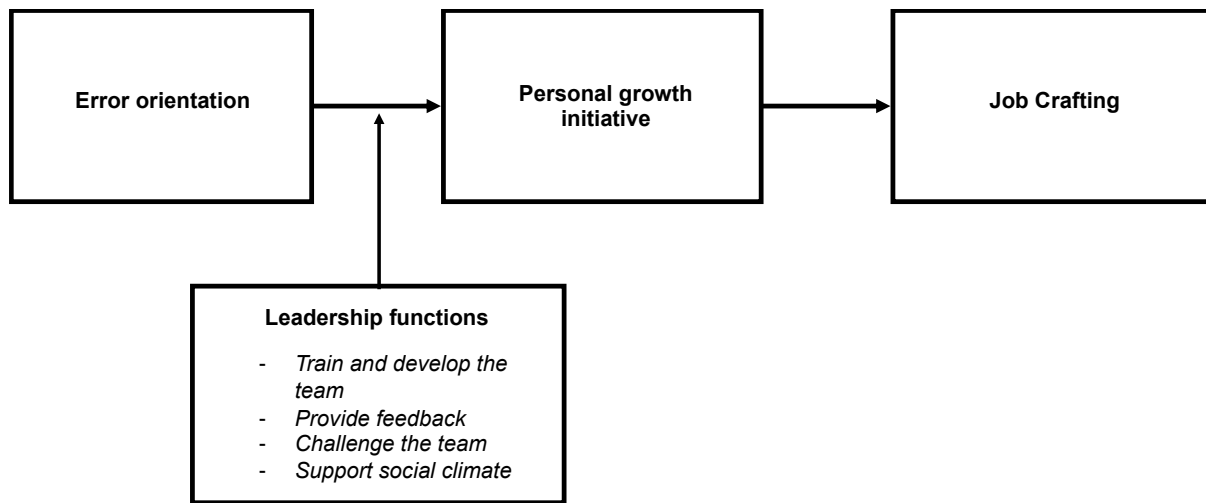


Figure 2.1 - Research Model – Moderated Mediation

3. Methodology

The following section will focus on the Methodology of this research. The sample will be defined as well as the procedure of the data collection. Furthermore, the development for the used instrument regarding all the variables will be presented, including the results of the reliability analysis of each construct.

3.1 The sample

The population relevant for this research was everybody who is currently in an employment relationship and who was able to evaluate their workplace environment and supervisor.

The present sample of this studies is a convenience, non-probability sample, thus there was no randomized selection of participants. In total, 209 people participated in this research, of whom 62% ($n = 130$) referred to being male and 38% ($n = 79$) to being female. The average age of the inquired group was 34,5 years ($SD = 10,068$), ranging from 20 to 67 years; only one person decided not to reveal their age. More than 80% of all participants stated to hold a university degree, whereas about 52% indicated to graduate with a Master's degree ($n = 109$) and 35% with a Bachelor's degree ($n = 73$). The remaining participants hold either a PhD, Apprenticeship, High School diploma or other form of education. In total, people from 35 different nations worldwide participated, even though more than half of them (62,7%; $n = 129$) were Germans; the second largest group being Italians (7,7%; $n = 16$) and third being people from Poland (3,8%; $n = 8$). Most people are currently in the position of a senior employee (25,8%; $n = 54$), followed by junior employees and young professionals (23,4%; $n = 49$), as well as Managers (19,6%, $n = 41$). The remaining participants ranged between Interns and General Managers. The time of company affiliation was below and up to three years for most of them (73,7%, $n = 154$), whereas only less than 8% ($n = 16$) have been working for the same company for more than ten years. Regarding the size of the companies the participants work for, about 55% ($n = 115$) stated to work in medium companies with less than 200 employees, about 28% ($n = 58$) work in companies with an employee range of 201-10.000 and about 17% ($n = 36$) work in large corporations with more than 10.000 employees. Furthermore, almost 62% ($n = 129$) work in companies that have been founded after 2001. Participants were also able to state the sector or industry they are currently working in through an open text field. Sorting and cumulating same and related answers into categories, 26 different industries were left. The biggest group was formed by people working in the IT & Tech sector (15,79%, $n =$

33), followed by respectively about 9% (n = 19) in both HR & Recruiting and Consulting as well as about 7% (n = 15) in Banking & FinTech as well as E-Commerce & Retail.

3.2 The procedure

For the collection of relevant data, an online questionnaire was developed and shared, using Qualtrics®, one of the international leading experience management tools. First of all, it was sent to anybody meeting the conditions in the private network, asking them to further spread the survey in order to enlarge the sample size (snowball procedure). Furthermore, the professional networking website LinkedIn was used to increase the number of respondents. To answer all the questions, it took participants approximately 15 minutes and it was possible to use an in-Browser or a mobile version.

All participants had to answer individually and for themselves. A short introduction text gave them an overview of the study and assured anonymity for everybody. The survey was fully conducted in English, therefore, a first question of consent guaranteed that only participants that feel comfortable in answering in English could proceed. This helped to ensure that the results of the survey were not influenced by any language barriers or misunderstandings.

3.3 The instrument

After the short introduction and the question of consent, the survey started right of with the main part about the variables studied, asking for demographics at the end of the survey. The variables that were being conducted are the following: Error orientation, measured through the error orientation questionnaire, personal growth initiative, job crafting and lastly, the questions regarding the four leadership functions. Before each block of questions, participants were always guided to think about a certain aspect of their work environment, for example, “For the following questions, please think about your current work environment and decide to what extent, the following statements applies to you”. All questions were mandatory to answer, in order to be able to proceed. Requested demographics at the end consisted of gender, age, nationality, Education, company size by number of employees (in categories, e.g., 51-200 or 201-500), duration of company affiliation (in categories, e.g., < 1 years, or 4-6 years), current job function, and founding date of the company (also in categories, e.g., 2011-2015, or before 1990).

3.3.1 Error orientation

The questionnaire being used for the measurement of error orientation derived from a tool that has been used by Van Dyck et al. (2005) for similar research in regard to measure error management culture - the Error Orientation Questionnaire (ESQ; Rybowskiak et al., 1999). This questionnaire has been validated and developed specifically for individuals and aims at assessing their behavioral, cognitive, and affective reactions towards errors in the workplace as well as their way of coping with errors. The ESQ comprises eight sub-scales, including error competence, learning from errors, error risk taking, error strain, error anticipation, covering up errors, thinking about errors and communicating about errors. The dimensions of covering up errors and error strain are directed at measuring error prevention and thus, must be reversed in the analysis. As part of the ESQ, participants specifically have to think about their current workplace, how errors and mistakes are being handled and choose their best fitting answer from a 5-level Likert scale that ranges from “does not apply at all” to “totally applies”. In total, the ESQ comprises 37 different items. An example of an item is: “I feel embarrassed, when I make an error”. The analysis for internal consistency revealed a Cronbach’s α of 0.80 which shows good reliability of the variable construct.

3.3.2 Personal Growth initiative

Work-related personal development was being measured through the variables of job crafting and personal growth initiative. In order to measure personal growth initiative, the personal growth initiative scale (Robitschek, 1998) was used. This instrument has been validated and checked for stability over time. It was initially developed for adults who were undergoing career transitions or generally seeking for change in their lives. In order to fit it to the needs of this research each item was alternated to a work-context instead of general life. For example, the item “I have a good sense of where I am headed in life” was transformed into “I have a good sense of where I am headed at work”. This construct was based on nine items. The participants were then able to choose their answer from a 6-level Likert scale ranging from “Definitely agree” to “Definitely disagree”. The analysis for reliability revealed a Cronbach’s α of 0.83 and thus, suggests very good reliability.

3.3.3 Job Crafting

For the measurement of job crafting abilities amongst all participants, the job crafting scale (Tims et al., 2012) was integrated in the questionnaire. The job crafting scale consists of four

sub-scales, namely increasing social job resources (e.g. “I ask my supervisor to coach me”), increasing structural job resources (e.g. “I try to develop my capabilities”), increasing challenging job demands (e.g. “I try to make my work more challenging by examining the underlying relationships between aspects of my job”), and lastly, decreasing hindering job demands, represented through items such as “I try to ensure that my work is emotionally less intense”. Generally, the Job crafting scale was developed and tested for its factor structure, reliability, and convergent validity. It also shows convergent validity with the construct of personal initiative (Tims et al., 2012). In total, it consists of 21 items and participants were asked to read the following statements and choose their answer from a 5-level Likert scale, ranging from “Never” to “Often”. Cronbach’s α was 0.83 and revealed a very good level of internal reliability.

3.3.4 Leadership functions

In order to measure the existence of the chosen leadership functions which have been developed by Morgenson and colleagues (2010), parts of the Team Leadership Questionnaire (TLQ), which has been developed by the same, were implemented in the overall survey. The tool was developed in course of the increased focus on the role of leadership in fostering team success. This instrument has not been validated yet in terms of reliability, dimensionality and validity. Nevertheless, it is suggested to use it as an integrative measurement tool to understand and define the existence of different leadership functions in a team. Since there was no validated specification of the scale, the 5-level Likert scale was chosen independently and in alignment with previous scales (in this case the scale of the ESQ, ranging from “does not apply at all” to “totally applies”). The scales for each of the leadership functions are all considered to be sub-scales of the TLQ. In total, this tool measures 15 different leadership functions, being divided in seven functions that are predominant in the transition phase and eight functions that are predominant in the action phase. In this case, participants were explicitly asked to think about their current supervisor and based on this decide how much he or she is showing the following behaviors. An example of an item for providing feedback would be “Rewards the performance of team members according to performance standards”; for training and developing the team, “makes sure the team has the necessary problem solving and interpersonal skills”; for challenging the team “emphasizes the importance and value of questioning team members” and lastly, for the function of supporting a social climate an example would be “does things to make it pleasant to be a team members”. The analysis for internal consistency was

made for each of the leadership functions. Cronbach's α for "Challenges the team" was 0.83, for "Train & develops team" it was 0.86, for "Provides feedback" it was 0.84 and for "Supports social climate" Cronbach's α was 0.86. All values suggest a very good reliability.

4. Empirical Analysis of the results

In order to analyze the collected data and test hypotheses, IBM SPSS statistics 27 software was used. The PROCESS Macro by Preacher and Hayes (2012) was also applied to evaluate direct, indirect and moderating effects of the different variables. Therefore, model 4 was considered to test hypothesis H1, model 1 for testing hypothesis H2 and model 8 in order to test for the moderated mediation included in hypothesis H3 (Hayes, 2013). For the moderated mediation, it is tested whether there is an indirect effect of error orientation on job crafting through personal growth initiative and if the a-path is moderated by the four different leadership functions.

Descriptive statistics and correlations are displayed in table 4.1. Aligned with previous expectations, there is a positive relation between error orientation and personal growth initiative ($r = .30, p < .01$) as well as between error orientation and job crafting ($r = .45, p < .01$). Moreover, the correlation between personal growth initiative and job crafting is even higher ($r = .45, p < .01$). The highest correlations can be found between the four dimensions of leadership functions; train and develop the team, provide feedback, challenge the team, and support a social climate (all of them $r > .70, p < .05$). In contrast to that, the lowest correlations show between error orientation and the latter leadership functions. In general, it seems that there is a positive, correlation between all variables measured at the level of at least 0.05. Only the correlation between error orientation and a leaders' support of a social climate did not reach statistical significance ($r = .01, p > .05$).

Table 4.1 – Descriptive Statistics and Correlations

	M	SD	1.	2	3	4	5	6
1. Error Orientation	3.3	.36						
2. Personal growth initiative	4.8	.65	.30**					
3. Job crafting	3.4	.53	.45**	.45**				
4. Train and develop	3.6	.90	.14*	.29**	.45**			
5. Provide feedback	3.7	.86	.16*	.34*	.40**	.82*		
6. Challenge team	3.6	.83	.14*	.31**	.46**	.82**	.82**	
7. Support Social climate	3.7	.88	.01	.29**	.35**	.79**	.76**	.72**

***. Correlation is significant at the level of 0.01*; **. Correlation is significant at the level of 0.05*

The results of the simple mediation for testing hypothesis H1 show support for the hypothesis. The findings revealed that error orientation significantly predicts PGI and thus indicates that error orientation is indirectly associated to job crafting through its relationship with personal growth initiative ($b = .15$, 95%CI: .07; .26).

The results of the moderation analysis in order to test H2a can be seen in table 4.2. The interaction term shows statistical significance ($b = -.31$; 95%: $-.54$; $-.10$, indicating that the leadership function of providing feedback is a significant moderator of the effect of error orientation on personal growth initiative. Furthermore, when feedback is low (e.g. $-1SD = -.86$), the relationship between error orientation and personal growth initiative is positive and significant but loses significance when feedback is high (e.g. $+1SD = .86$). Thus, H2a is not supported, as the moderation, although being significant, happens in the opposite direction than expected.

Table 4.2 – Results of Moderation analysis for H2a

Predictor Variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	<i>LL 95% CI</i>	<i>UL 95% CI</i>
Error Orientation	.41	.11	3.63(205)	.000	.19	.64
Providing feedback	.22	.05	4.68(205)	.000	.39	.32
Interaction	-.31	.11	-1.84(205)	.005	-.54	-.10

LL = lower limit; CI = confidence interval; UL = upper limit. All predictor variables were mean-centered.

Table 4.3 presents the results of the moderation analysis to test H2b. It indicates that the leadership function of training and developing the team is a significant moderator of the relationship between error orientation and personal growth initiative ($b = -.29$, 95%CI: $-.51$; $-.07$). Additionally, if training and development is low (e.g. $-1SD = .90$), the effect of error orientation on PGI is positive and significant. However, if training and development increases (e.g. $+1SD = .90$), the effect becomes smaller and is not significant anymore. Therefore, H2b is again not supported because the effect does not occur in the expected direction despite significance.

Table 4.3 – Results of Moderation analysis for H2b

Predictor Variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	<i>LL 95% CI</i>	<i>UL 95% CI</i>
Error Orientation	.41	.12	3.51(205)	.001	.18	.64
Train and develop	.19	.05	4.14(205)	.000	.10	.28
Interaction	-.29	.11	-2.60(205)	.010	-.51	-.07

LL = lower limit; CI = confidence interval; UL = upper limit. All predictor variables were mean-centered.

Furthermore, it was hypothesized that challenging the team will also affect the relationship between error orientation and personal growth initiative. According to the results presented in table 4.4, the hypothesis H2c is not supported ($b = -.28$, 95%CI: $-.54$; $-.03$). The effect occurs in the opposite direction, but the leadership function represents a significant moderator in the model. It shows that lower values of challenging the team (e.g. $-1SD = -.83$) reveal higher and significant effects on personal growth initiative. On the other hand, higher values in challenging the team lead to a lower effect of error orientation on PGI.

Table 4.4 – Results of Moderation analysis for H2c

Predictor Variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	<i>LL 95% CI</i>	<i>UL 95% CI</i>
Error Orientation	.41	.12	3.51(205)	.001	.18	.64
Challenge Team	.23	.05	4.45(205)	.000	.13	.32
Interaction	-.28	.13	-2.23(205)	.027	-.54	-.03

LL = lower limit; CI = confidence interval; UL = upper limit. All predictor variables were mean-centered.

Focusing on the moderating effect of supporting a social climate, the results are presented in table 4.5. It can be said that the leadership function of supporting a social climate acts as a significant moderator in the relationship between error orientation and personal growth initiative ($b = -.33$, 95%CI: $-.52; -.14$). Again, if the support for a social climate is increasing, the effect of error orientation on personal growth initiative declines and hence, does not show support for hypothesis H2d, despite significance.

Table 4.5 – Results of Moderation analysis for H2d

Predictor Variable	<i>b</i>	<i>SE</i>	<i>t(df)</i>	<i>p</i>	<i>LL 95% CI</i>	<i>UL 95% CI</i>
Error Orientation	.52	.11	3.72(205)	.000	.31	.74
Support Social climate	.22	.05	4.82(205)	.000	.13	.31
Interaction	-.33	.10	-3.37(205)	.001	-.52	-.14

LL = lower limit; CI = confidence interval; UL = upper limit. All predictor variables were mean-centered.

Concluding, the moderations for hypotheses H2a, H2b, H2c and H2d all show significance. Nevertheless, none of them can be supported, as the moderation effect happens to be in contrary direction to what has been hypothesized.

As for hypothesis H3a, the index of moderated mediation shows significance ($b = -.09$, 95%CI: $-.17; -.02$), meaning that the leadership function of providing feedback significantly moderates the indirect effect of error orientation on job crafting through personal growth initiative. The negative effect, however, leads to the fact that this hypothesis is not supported because the results go in the opposite direction than expected. Furthermore, the results for H3b show significance ($b = -.08$, 95%CI: $-.17; -.00$), but again the effect of error orientation on job crafting through PGI is negative when providing feedback is high and therefore does not support H3b. Training and development moderates the mediation (a-path) presented in H1. It was also hypothesized (H3c) that a higher value in challenging the team by leaders will increase the indirect effect of error orientation on job crafting through PGI. This hypothesis could not be supported ($b = -.08$, 95%CI: $-.18; .01$). The last hypothesis, H3d thematizes the effect of support for a social climate as a moderator within the mediation (H1). The results of this moderated mediation analysis show significance ($b = -.09$, 95%CI: $-.18; -.03$) but do not support H3d as again, the effect is negative. Overall, the indirect effect of error orientation on job crafting through personal growth initiative is only significant for situations where the

leadership function of training and developing, providing feedback, and supporting the social climate are low. If they increase, the effect decreases and loses its significance. The following table shows an overview of the supported and not supported hypotheses.

Table 4.6 – Summary of Hypotheses testing

Hypothesis	Supported / not supported
H1: Personal growth initiative mediates the positive effect of error orientation on job crafting.	Supported
H2a: The leadership function of providing feedback increases the positive effect of error orientation on personal growth initiative.	Not supported
H2b: The leadership function of training and developing the team increases the positive effect of error orientation on personal growth initiative.	Not supported
H2c: The leadership function of challenging the team increases the positive effect of error orientation on personal growth initiative.	Not supported
H2d: The leadership function of supporting a social climate increases the positive effect of error orientation on personal growth initiative.	Not supported
H3a: The mediation presented (H1) exists especially, when leaders' feedback is high.	Not supported
H3b: The mediation presented (H1) exists especially, when training and development is high.	Not supported
H3c: The mediation presented (H1) exists especially, when challenges by leaders are high.	Not supported
H3d: The mediation presented (H1) exists especially, when support for a social climate is high.	Not supported

5. Discussion

The overall goal of this research was to identify the effect of error orientation on work-related personal development, represented by personal growth initiative and job crafting. Furthermore, it was intended to address leadership functions that influence this effect, and which play an important role within this relationship in order to give useful insights for practical implications. In this case, four leadership functions have been examined: providing feedback, training and development, challenging the team and supporting a social climate.

With the exception of the first hypothesis, none of the nine hypotheses have been supported. Accordingly, it has been demonstrated through a simple mediation that there is a positive indirect relationship between error orientation and job crafting through personal growth initiative. This means, if the level of error orientation increases, it will most certainly also increase job crafting activities among individuals through increasing PGI. Furthermore, it can also be said that all four leadership functions showed significant effects on the relationship of error orientation on personal growth initiative. Nevertheless, and against expectations, it

showed a contrary effect. Thus, if the presence of a leader figure and with it these leadership functions increase, the effect of error orientation on personal growth initiative decreases. Lastly, it was hypothesized that the mediation of personal growth initiative on the relationship between error orientation and job crafting exists especially when the four leadership functions are also high. This only showed significance (even though, in the opposite direction than expected) for providing feedback, supporting a social climate, and training and developing the team, but leading to non-significant results for the function of challenging the team. Nevertheless, it needs to be considered that this result was not significant by 0,01 in the confidence interval. Therefore, the assumption can be made that a significant result would be obtained with a larger sample. Again though, the effect for all four leadership functions in this model did not show the expected direction and hence, the effect of error orientation on job crafting through personal initiative decreased if the functionalities of the leader increased.

It is now precisely of interest to consider possible reasons for the contrary effect of the leadership functions within the moderation as well as within the moderated mediation model. Why is the effect of error orientation on job crafting as well as on job crafting through PGI reduced when leadership functions intensify? One possibility to justify the decrease of the effect might be the fact that the leadership functions defined by Morgeson et al. (2010) and referred to in this study, were designed within the context of team effectiveness. Therefore, these are behaviors that are directed at a group, while error orientation, personal growth initiative as well as job crafting are all individual actions. If a leaders' behavior is focused on a whole team, error practices focusing on the individual behavior might be less salient to employees.

Another possibility to explain the decreasing effect might be a compensation effect. In this case, if a leader is very effective in the leadership functions of interest, the general as well as the individual level of error orientation might become less important for the personal development of employees. For example, it has been proven by Birdi, Allan, and Warr (1997) that perceived management support was positively related to self-reported voluntary activities in further job-related learning and development. It might imply that leaders have the chance to compensate for a lack of error orientation within their employees and thus, still promote the work-related personal development. For example, receiving feedback is an essential part within the learning process of individuals and moreover also promotes proactive self-management and initiating one's own development (Deci et al., 1989). If a leader provides constructive and regular feedback to his or her team members, it will help them to understand and reflect on erroneous situations and lead to improvement, despite their general level of error orientation.

Therefore, if a leader provides continuous feedback, it can support the personal development of employees while compensating for closure towards errors or error management practices. Furthermore, the training and development of team members can also enhance their skills, their knowledge and their believe in their own capabilities to execute and organize certain tasks or situations (Axtell & Parker, 2003). It refers to Banduras definition of self-efficacy (1986) and can be supported through a leaders' training practices. Self-efficacy is an important antecedent for proactive behavior across several situations (Fay & Sonnentag, 2010) and thus may also enhance personal growth initiative, even if the individual level of error orientation is low. Regarding the third leadership function of challenging the team, it can be argued that challenges take resources and time to be overcome, which means that team members also need to show proactivity. If a leader promotes challenges for their team members, the personal growth initiative might be less dependent on error orientation but can rather be predicted by this function of their leader. Lastly, if individuals feel safer and relaxed at work, as part of a social climate, they might be less afraid of their mistakes and consequences of the latter. Thus, they might perceive it as less important to reflect on them or make corrections. Nevertheless, a social climate enhances team interaction and can explain why team members are rather willing to share information and knowledge (Collins & Smith, 2006) or take the initiative in developing new ideas (Baer & Frese, 2003). Concluding, if a leader promotes such a climate, the level of error orientation of individual team members might lose importance in the progression of personal growth initiative and thus, explains the negative effect.

In addition to that, it should be considered that the sample was rather young, with an age average slightly below 35 years, whereas almost one quarter of the sample stated to be a junior employee or young professional. Younger people might be more prone to erroneous situations in general as they are only at the beginning of their career, especially if they are doing many tasks just for the first time. Since their learning curve is usually steeper than the one of employees with more experience, it could also be other factors, such as the leadership functions of interest that influence their development, despite if there is a general organizational openness towards errors or not and despite their own individual error orientation. In accordance with this, more than 55% of the participants stated to work in a company with less than 200 employees and 62% stated to work in a company that was founded after 2001. This could be an indication for rather young companies with less bureaucratic cultures who are generally more open towards errors and transparency. Error management practices might be taken for granted and thus are less important in predicting PGI, while leadership behavior and general interaction with ones' leader might be more salient for employees.

5.1 Practical implications

Companies and their employees are pressured more and more to cope with fast-paced and quickly changing work environments, which implies the need to be constantly adapting to new situations and surroundings. According to Garvin and colleagues (2008) a so called “learning organization” (Senge, 1990), whose employees are skilled at acquiring, creating and transferring knowledge are more prone to adapt faster to unpredictable events and new situations. Accordingly structured mechanisms of learning from failure are key processes in the theory of organizational learning and assure robust organizations (Weick & Sutcliffe, 2001). Thus, error orientation proves to be a very important variable within the culture of an organization, since the way errors are being managed on an organizational level can determine the degree of learning and development among employees. As proposed by Watkins and Marsick (1992), just formal training and organized instructions are not enough to support continuous learning in a work-related context. To foster continuous learning and development in an organization, informal and incidental learning, which learning from errors is a part of, also need to be internalized daily. The tactic of implementing practices into a cultural system therefore applies for a positive error orientation and moreover error management practices. Edmondson (2004a) provides evidence that the detection of errors is strongly influenced by the characteristics of a whole organization. Therefore, using the concept of culture for the introduction of error management can be advantageous for companies (cf. Klein et al., 1994). The concept of culture in general derived from an anthropological approach and describes how social groups distinguish from one another. Edgar Schein (1985) one of the most well-known authors in this field defines culture as:

A pattern of basic assumptions, invented, discovered, or developed by a given group as it learns to cope with its problems of external adaption and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (p. 9).

The term *organizational culture* on the other hand has its origin in the field of organizational development and must be distinguished from national cultures (Hofstede, 2001). It came into the focus of research much later, turned into a renowned expression in the 1980s and became a useful definition when thinking about the social system of an organization and indicates the practices that evolved around the handling of people in it. Over the years, several definitions

became prominent, but one of the most agreed and shorthanded definitions of organizational culture is “the collective programming of the mind that distinguishes the members of one group or category of people from another” (Hofstede, 2001, p. 9). An organizational culture aggregates the shared values, beliefs and traditions of members that belong to the same organization (Reichers & Schneider, 1990; Walter, 1985). Therefore, only if error management practices are part of an organizational culture, they will also be fully internalized and disclose all benefits. Additionally, it is of utmost importance that the span of time is sufficient to experience enough shared history within a group in order to be able to develop one’s own culture (Schein, 1992a). It is noticeable that culture must not be described by just observing a group of people. It consists of different layers and elements that can either be hidden or visible to everyone. According to Schein (1985), it is desirable to distinguish between three fundamental dimension of a culture – (a) artifacts, (b) espoused values and (c) basic underlying assumptions. The level of artifacts is the one that can be most easily observed and thus, also most easily be applied. It refers to behavioral norms and everything that can be seen, felt, or heard within an organization. To develop an error management culture, ideas to implement on an artifactual level should be accessible and in the best case visible to everybody, but can also be routines, the way people talk to each other or anything else that directly addresses the emotions of the individuals. For example, regular “failure parties” or “failure meetings” that allow safe and open communication, as well as reflection of the erroneous situation and its antecedents can be implemented. Also, smaller dimension can be helpful, such as quick failure feedbacks each day, team error diaries, or simple posters with quotes on the wall that encourage making and reporting errors. To foster such ideas, it might also be necessary to hold group communication trainings, write error protocols or implement an error-buddy system to remind and observe each other. In general, such visible organizational structures and processes usually happen consciously and are easy to monitor, but at the same time can easily be interpreted the wrong way if outstanding people are not properly introduced to a culture and its lower levels (Schein, 1990). To embed such processes even deeper into the culture, it is necessary to understand why such practices are introduced and what they stand for. This leads to the next level, the development of espoused values within Schein’s multi-level culture model. Espoused values are strategies, goals or philosophies that might predict observable behaviors on the artifactual level (Schein, 1992a). These values need to be fully internalized in the group and based on prior learning, otherwise they will refer to what people may say about their own culture, but not necessarily mirror what they actually do (Argyris & Schön, 1978). To fully embody them, a social process of shared experiences, validation and transformation must be

passed through (Schein, 1992a). In general, but especially at this point, it is important for a leader to act as a role model, by openly communicating own errors and failures but also by discussing and encouraging mistakes of others. If a leader sets examples and coaches employees to be more aware of their errors as well as the errors of others and at the same time implements open communication structures and supports a safe environment, employees will internalize and execute such behavior themselves and hence contribute to a successful error culture (cf. Bandura, 1986). New employees can be embedded in a strong error management culture and still, the perception of feeling safe to speak up, addressing problems openly, or asking for help may vary between teams. According to Edmondson (2003), this variance can be attributed to behaviors of leaders, whose different approaches and styles convey different rules and messages. If a leader prompts the team to act on his or her belief, the group will necessitate time to realize the success of this belief through a collective learning process (Schein, 1992a). Only if continuous success is experienced, for example by realizing that reporting an error has no negative consequences, it will transform cognitively, be fully internalized and develop into a commonly shared belief. In regard to this, it makes sense to implement cross-departmental and global organizational rules on how team members should address each other, how to give feedback, how to report and how to detect errors. If such processes show success, they will most certainly be learned and internalized by the group over time. Furthermore, it will transform further into taken-for-granted assumptions which are supported by articulated beliefs, norms, or behavioral rules to provide behavioral guidelines for everybody but especially for new employees joining this culture. If espoused values and underlying basic assumptions are mostly congruent, it can be useful to present and formerly introduce them to the organization, serving as a source of identity. For example, this could again be shown visually in form of posters, digital company guidelines or maybe even merchandise products with quotes that represent the culture's values and beliefs. Thus, to fully understand shared and non-shared values and to be able to predict future behavior, the level of basic assumptions needs to be completely comprehended. It is the deepest level in Schein's culture model; perceptions of it mostly happen unconsciously and hardly show any variation within a cultural unit (Schein, 1992a). The stronger, such assumptions are held within the group, the more likely is the development of conceivable and non-conceivable behaviors among team members. This means, that at some point not only the leaders are within the responsibility to reinforce cultural practices, but also team members among themselves will reprimand each other if certain agreed behaviors are not observed. If employees have the feeling of responsibility towards the company they are working for as well as their co-workers,

it is more likely to exhibit extra-role behaviors, which often include voluntarily engaging in development activities (Pearce & Gregersen, 1991). As underlying assumptions are almost non-debatable and problematic to confront, they are also extremely difficult to change. This indicates that basic assumptions are the essence of a culture, even though they will manifest and expose themselves on the more observable levels of artifacts, values, norms and other behavioral rules (Schein, 1992a). It is of utmost importance to introduce such practices openly, for example through leading by example. Edgar Schein (1992a) underlined the importance of leadership in general within a cultural unit. He even argued that both – culture and leadership - are “two sides of the same coin” (p. 15), meaning that there is an interdependence of both. He refers to the fact that leaders are the ones that primarily create a culture, but once a culture exists, it also determines the criteria for leadership and who will be a leader or who won’t. Thus, the behavior of leaders in an organization is signaling what is expected and how certain things should be done, and at the same time, is something that employees constantly pay attention to (Edmondson, 2004b; Tyler & Lind, 1992). It is required that executives set out the right behaviors and contemplate on how to establish a general openness towards errors and error competence among employees. Furthermore, other leadership functions, behaviors and styles might be advantageous when implementing error management to a cultural level. For example, empowering leadership enables employees to take independent actions when it comes to dealing with errors. Also, leadership functions that have not been part of this study, such as providing resources, defining a mission, or the composition of a team can also be essential and very helpful in the process of establishing an error management culture. For example, when it comes to the setting of the team, it is important that employees have different perspectives of an erroneous situation. Of course everybody should have the same perception of the fact that something is generally wrong, but if everybody perceives the situation equally right or wrong, error detection in general might be lower (Frese & Keith, 2015). Furthermore, in order to facilitate an error management culture and organizational learning, leadership behavior that provides positive reinforcement plays a central role (Garvin et al., 2008). This in turn links this approach back to Peter Senge’s learning organization (1990). It makes sense to see both approaches - error management culture and learning culture as extension of each other, as both share similar ideas of the outcome.

5.2 Limitations & Future research

Although the sample of participants for this research is quite big and there is solid theoretical as well as practical contributions to support the stated hypotheses, there are also a few limitations in this study. First of all, the research follows a cross-sectional design which limits the collected data to self-reports, conducted on a single moment in time. For future research, it would be interesting to test if attitudes and perceptions of employees change over time or if they stabilize. This might especially be interesting in regard of the fact that the sample is rather young and less experienced. Focusing on a randomized sample that includes all age groups or even focusing on certain age groups or just general older groups will probably reveal different results. Furthermore, the research was based on a convenience sample, using the snowball method and thus, shows low credibility as it does not follow the rules of randomization in order to represent the population of interest accordingly. Moreover, the sample is very vulnerable to selection bias and other influences beyond the control of the researcher, including a high level of sampling error.

Furthermore, only four out of fifteen leadership functions were chosen for this research. This leaves many interesting ideas for future research on the remaining ones, as they play a relevant role within this model, especially when it comes to the organizational level. Examples of the remaining leadership functions are establishing expectations and goals, sensemaking, solving problems or monitoring the team. However, taking into account the difference between the leadership functions being directed to the group level, while other variables are focused on the individual, it would also make sense to measure dependent variables also on a team level. This would allow a better picture of the team perceptions on their working environment. Additionally, focusing on leadership styles, leadership personality traits, locus of leadership or general leadership behavior might also shed light on how supervisors may impact the individual work-related personal development of their team members. Involving executives in this study will even increase importance when moving to the cultural level. Leadership behavior and culture are closely connected, as leaders are the ones that set out the mission and goal for their companies, choose who will join the team and who won't, lead as example and thus have a huge influence on how a certain culture evolves within the organizational context (Schein, 1992a).

Regarding the construct of work-related personal development, it must also be said that there is no clear definition of it, yet. Personal growth initiative and job crafting were chosen according to existing research and reasonable argumentation. However, as it is a very broad term, other variables such as learning improvement, general performance, self-reflection as

well as improvements of soft and social skills could be of interest. Including other variables to infer work-related personal development is something that future research might focus on. Additionally, it must be said that different types of errors were defined within the scope of this research but have not been explicitly explained to the participants. Thus, individual perceptions of errors and erroneous situations could have been interpreted very differently across the sample. Furthermore, this research made use of the Error Orientation Questionnaire (ESQ; Rybowskiak et al., 1999), which includes eight different dimension of which two (error strain and covering up errors) indicate error prevention attitudes, while the others aim at measuring openness towards errors. For future research it could also be of interest to actually split those dimensions and consider both constructs independently to avoid biases in the results – meaning to measure either error orientation or error prevention.

It also needs to be considered that this research was conducted during a time of a global pandemic. This could have influenced the results insofar as people were mostly working from home while they were asked to evaluate their working environment and supervisors. The way participants perceived their teams, their surroundings and the cooperation with their supervisors might have been completely different working remotely, compared to working together in the office. Moreover, due to the new remote environment, some daily tasks may transform from easy-to-do to more sophisticated and time-consuming tasks, increasing the chance for error prone situations. Furthermore, the general mood of employees could have been different, compared to “normal times” as the general social context and face to face support from others was lower than usually.

Lastly, taking the multilevel issue between the constructs of error orientation, error management and error management culture into account, it would be interesting for future research to focus on the organizational context. This implies that several different perspectives and moreover not just self-reports need to be included to give reliable insight into a corporate culture. Going even beyond that, future studies might even consider differences in national cultures as well. Work has never been more global as it is today and the number of internationally operating companies is increasing fast, while worldwide migration rises. Therefore, understanding cross-cultural differences on how errors are being approached and dealt with among employees and how it may affect their work-related personal development may become a very present topic.

6. Conclusion

As global businesses are shifting more and more towards a knowledge-based economy, the call rises for increased organizational learning in order to foster development and innovation within companies. Given the fact that errors will never fully disappear from occupational lives, the design of a work environment in which it is possible to profit and learn from mistakes and collectively avoid making the same ones in the future, becomes an essential management topic. If errors cannot be eliminated and organizations need to develop constantly, then why not use one thing to help the other? This research contributes to this idea by pointing out the benefits of high error orientation and furthermore raising this approach to an organizational level that may influence the degree to which errors are caught and corrected by work teams. However, it also needs to be emphasized that error orientation alone is not the only antecedent for personal growth initiative and job crafting. Moreover, a leader who is present to his or her team and who takes their functionalities seriously, has the chance to compensate for error disclosure. Nevertheless, the question *how* leaders, in terms of leadership style or other further functionalities can actually support the effect of error orientation on work-related personal development still remains and hopefully motivates researchers to pursue with exciting research within this topic.

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Appendix

Appendix A – Questionnaire, online survey

Dear participant,

Thank you for taking the time to participate in this research project as part of my Master Thesis in cooperation with the ISCTE Business School in Lisbon. This research is focused on how mistakes or errors are handled at work and the effect on employees.

It will take about 15-20 minutes to answer all the questions which tap on a few aspects of your working environment. There are no right or wrong answers, and your personal opinion is of utmost value to me!

As a matter of course, your participation is voluntary and you have the right to withdraw at any time during the questionnaire. All of your answers will be treated confidentially and evaluated in an anonymous way for scientific purposes only. However, I kindly like to remind you that your participation might be extremely relevant for the success of this project.

If you are interested in the results of this research or if you have any questions or concerns about it, feel free to contact me at isabelle.fischer@iscte-iul.pt.

Thank you very much for your participation!

As there is only an english version of this survey, please confirm that you feel comfortable in answering to these questions in english.

☐ YES, I feel comfortable in answering to these questions in english

0% 100%

Please think about yourself and your current workplace. To what extend do the following statements apply to you?

	Not at all	A bit	Neither a bit, nor a lot	A lot	Totally
If one wants to achieve at work, one has to risk making mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I do something wrong at work, I correct it immediately.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't let go of the goal, although I may make mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To get on with my work, I gladly put up with things that can go wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I make a mistake at work, I tell others about it in order that they do not make the same mistake.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mistakes provide useful information for me to carry out my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I have made a mistake, I know immediately how to correct it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I have done something wrong, I ask others, how I should do it better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is better to take the risk of making mistakes than to 'sit on one's behind'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am often afraid of making mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mistakes assist me to improve my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mistakes have helped me to improve my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is disadvantageous to make one's mistakes public.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most of the time I am not astonished about my mistakes because I expected them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel embarrassed when I make an error.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If it is at all possible to correct a mistake, then I usually know how to go about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'd prefer to make an error, than to do nothing at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While working I am concerned that I could do something wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It can be useful to cover up mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please continue to think about yourself and your current workplace and decide to what extent these statements apply to you:

	Not at all	A bit	Neither a bit, nor a lot	A lot	Totally
My mistakes help me to improve my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often think: 'How could I have prevented this?'.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would rather keep my mistakes to myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I cannot manage to correct a mistake, I can rely on others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In carrying out my task, the likelihood of errors is high.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If something goes wrong at work, I think it over.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it stressful when I make an error.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Why mention a mistake when it isn't obvious?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a mistake occurs, I analyze it thoroughly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I cannot rectify an error by myself, I turn to my colleagues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whenever I start some piece of work, I am aware that mistakes occur.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I make a mistake at work, I 'lose my cool' and become angry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I anticipate mistakes happening in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employees who admit to their errors, make a big mistake.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After I have made a mistake, I think about how it came about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not find it useful to discuss my mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect that something will go wrong from time to time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After a mistake has happened, I think long and hard about how to correct it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please think about yourself and how you feel at your current workplace. To what extent do you agree to the following statements?

	Definitely disagree	Mostly disagree	Somewhat disagree	Somewhat agree	Mostly agree	Definitely agree
I know how to change specific things that I want to change in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a good sense of where I am headed with my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I want to change something in my work, I initiate the transition process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can choose the role that I want to have in a group at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know what I need to do to get started toward reaching my goals at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a specific action plan to help me reach my goals at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take charge of my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know what my unique contribution to the company might be.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a plan for making my work more balanced.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please think again about your current workplace environment and the team/ colleagues you work with - to what extent do you find the following statements accurate?

	Very inaccurate	Mostly inaccurate	A bit inaccurate	Neither inaccurate, nor accurate	A bit accurate	Mostly accurate	Very accurate
If you make a mistake on this team, it is often held against you.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of this team are able to bring up problems and tough issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People on this team sometimes reject others for being different.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is safe to take a risk on this team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is difficult to ask other members of this team for help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one on this team would deliberately act in a way that undermines my efforts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with members of this team, my unique skills and talents are valued and utilised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please think about your daily tasks and your work in general. How often do you experience the following situations?

	Never	Sometimes	About half the time	Most of the time	Often
I try to develop myself professionally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to make my work more challenging by examining the underlying relationships between aspects of my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I manage my work so that I try to minimize contact with people whose problems affect me emotionally.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask colleagues for advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to ensure that my work is emotionally less intense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When there is not much to do at work, I see it as a chance to start new projects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I organize my work so as to minimize contact with people whose expectations are unrealistic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When an interesting project comes along, I offer myself proactively as project co-worker.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask others for feedback on my job performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to ensure that I do not have to make many difficult decisions at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make sure that I use my capacities to the fullest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask whether my supervisor is satisfied with my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look to my supervisor for inspiration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I decide on my own how I do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to develop my capabilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I organize my work in such a way to make sure that I do not have to concentrate for too long a period at once.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If there are new developments, I am one of the first to learn about them and try them out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make sure that my work is mentally less intense.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I regularly take on extra tasks even though I do not receive extra salary for them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask my supervisor to coach me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to learn new things at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please think about your supervisor at your current workplace - to what extent do the following statements apply to your supervisor:

	Not at all	A bit	Neither a bit, nor a lot	A lot	Totally
Contributes ideas to improve how the team performs its work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps new team members learn how to do the work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rewards the performance of team members according to performance standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responds promptly to team member needs or concerns.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suggests new ways of looking at how to complete work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reviews relevant performance results with the team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicates business issues, operating results, and team performance results.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides team members with task-related instructions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides corrective feedback.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Looks out for the personal well-being of team members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps the team learn from past events or experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Emphasizes the importance and value of questioning team members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Goes beyond own interests for the good of the team.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reconsiders key assumptions in order to determine the appropriate course of action.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engages in actions that demonstrate respect and concern for team members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes sure the team has the necessary problem solving and interpersonal skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provides positive feedback when the team performs well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helps new team members to further develop their skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does things to make it pleasant to be a team member.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Challenges the status quo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Gender

- ☐ Male
- ☐ Female
- ☐ *

Age

Nationality

Highest educational degree

- ☐ Doctorate / PhD
- ☐ Master
- ☐ Bachelor
- ☐ Apprenticeship
- ☐ High School
- ☐ Other

Current job function

- ☐ General Manager
- ☐ Company Owner
- ☐ Vice President
- ☐ Director
- ☐ Manager
- ☐ Senior employee
- ☐ Junior employee / young professional
- ☐ Intern / Working student
- ☐ Volunteer
- ☐ Other

How many people work in your company?

- ☐ I am an independent worker
- ☐ 1 - 10
- ☐ 11 - 50
- ☐ 51 - 200
- ☐ 201 - 500
- ☐ 501 - 1.000
- ☐ 1.001 - 5.000
- ☐ 5.001 - 10.000
- ☐ > 10.000

In which year was the company founded you currently work for?

- ☐ later than 2016
- ☐ 2011 - 2015
- ☐ 2001 - 2010
- ☐ 1991 - 2000
- ☐ before 1990

How long have you been working for the current company?

- ☐ < 1 year
- ☐ 1 - 3 years
- ☐ 4 - 6 years
- ☐ 7 - 10 years
- ☐ > 10 years

In which industry would you classify your company?