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Ambidextrous leadership:

Motivation as the mechanism between ambidextrous leadership and innovative workplace behaviors.

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Abstract

Purpose: the purpose of the current study is to examine the relationship between ambidextrous leadership, opening behaviors, closing behaviors on innovative workplace behaviors, with intrinsic and extrinsic motivation taken into account as mediators. For testing ambidextrous leadership, opening behaviors and closing behaviors, a newly designed scale that has recently been developed will be used. The aim of this study is to identify the mechanisms leading to innovative workplace behaviors.

Design/methodology/approach: 194 employees of different companies and sectors answered a questionnaire which included multiple scales to measure every variable per person.

Findings: the findings in the study support the hypotheses for the direct relationships between opening behaviors and intrinsic motivation, intrinsic motivation and innovative workplace behaviors, closing behaviors and extrinsic motivation, and extrinsic motivation and innovative workplace behaviors. The study also supports a full mediation for opening behaviors and innovative workplace behaviors with intrinsic motivation as a mediator, and partial mediation with extrinsic motivation as a mediator between closing behaviors and innovative workplace behaviors. At last, a parallel mediation between ambidextrous leadership and innovative workplace behavior was established, with intrinsic and extrinsic motivation as parallel mediators.

Limitations and implications: The study indicated that the relationship between the named variables is to a higher level dependent on motivational mechanisms than prior research has suggested. The current study has established the importance of ambidextrous leadership, when looking at innovative workplace behaviors and how this relatively new leadership style can contribute to these innovative behaviors. For organizations, these results show that successful ambidextrous leadership can help to improve innovative behaviors among employees in different ways. The current research studied intrinsic and extrinsic motivation, and the results have shown that especially intrinsic motivation is an important factor in the relationship between leaders' opening behaviors and innovative workplace behaviors. Some implications of the current study are the cross-sectional nature of the study, the possibility that the COVID19 pandemic might have influenced the questionnaire and the longevity of the questionnaire.

Introduction

For many organizations today, innovation and employees' innovative workplace behaviors (IWBs) are seen as increasingly important (De Jong & Den Hartog, 2010; Shanker, Bhanugopan, Van Der Heijden & Farrell, 2017), as these behaviors make organizations and individual employees work more effectively (Ramamoorthy, Flood, Slattery & Sardesai, 2005). This has to do with the current, accelerating pace of global innovation. This requires many organizations to take a closer look at how their employees contribute to innovation within organizations, in order to be able to keep up with the changing environment. Because nowadays, companies ask more from their employees than exclusively doing the job they are being asked to do. Wang, Eva, Newman & Zhou (2020) support this by stating that 'innovation continues to be the lifeblood of organizations'. Therefore, IWBs are of fundamental importance (Leong & Rasli, 2014; Örnek & Ayas, 2015; Probst, Raisch & Tushman, 2011). In conclusion, innovation is seen as generally important within any professional environment, as it is positively related to a better performance (Jiménez-Jiménez & Sanz-Valle, 2011; Thornhill, 2006, Rosenbusch, Brinckmann & Bausch; 2011).

Innovation in a professional environment increases on the basis of IWBs. IWBs are about finding new solutions and new ways to approach a certain problem within the organizational environment and go beyond thinking within the existing methods. The reason for the increase of innovation on the basis of IWBs is that such behaviors have the aim to improve general organizational performance by introducing new ideas, processes, products and/or procedures and implementing those within the organization (De Jong, 2010x).

Given the importance of IWBs, the relevant question is, which processes lead to IWBs? One of the most important factors predicting IWBs, is leadership (Mumford, Scott, Gaddis & Strange, 2002; Afsar, Badeer & Saeed, 2014; De Jong & Den Hartog, 2010). Among the leadership behaviors that have been explored until now, the most influential leadership style leading to IWBs is stated to be ambidextrous leadership (AL) (Zacher, Robinson & Rosing, 2016; Zacher & Wilden, 2014). AL is composed out of two different leadership behaviors, in which the focus lies on the flexibility to shift between these as the situation requires (Trong Tuan, 2017). This indicates that flexibility and timing is critical for AL. The two different

aforementioned leadership behaviors are opening leadership behaviors (OBs) and closing leadership behaviors (CBs). In short, AL is influential on IWBs because, according to Rosing, Frese & Bausch (2011), leaders who enroll in these OBs foster explorative behaviors, and leaders who enroll in CBs foster exploitative behaviors. In turn, exploration and exploitation stimulate innovation and IWBs among employees. In the current study, the motivational mechanisms leading to IWBs have been explored. Specifically, the relationship between OBs, CBs and AL on the one hand and IWBs on the other, and the mediating role of two different types of motivation in these processes were investigated. These types of motivation were intrinsic (IM) and extrinsic motivation (EM). The hypotheses to be studied are visualized in the Figure 1.

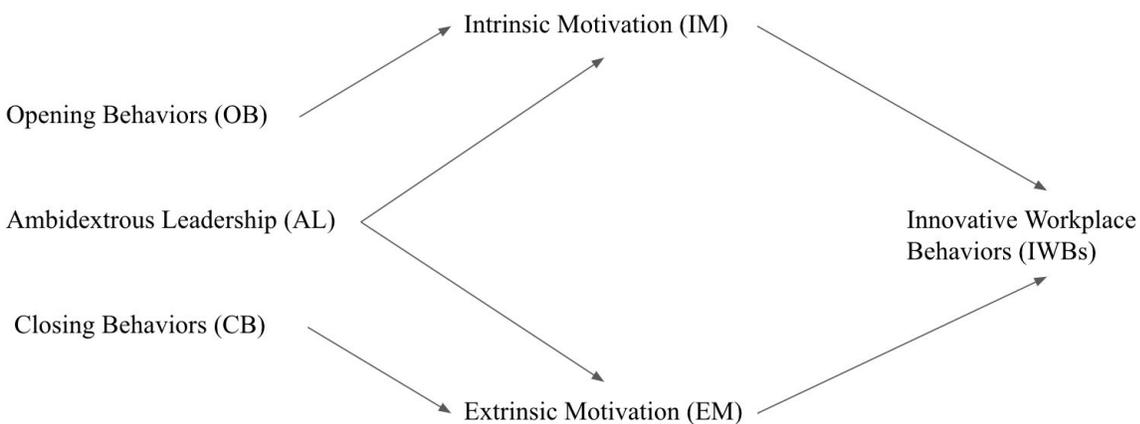


Figure 1: Influence of opening behaviors, closing behaviors and ambidextrous leadership on innovative workplace behavior with a mediating role of intrinsic and extrinsic motivation.

Even though research has been done on OBs and CBs, AL and IWBs (Rosing et al., 2011; Bledow & Frese, 2011; Zacher & Rosing, 2011) and also on IM and EM and IWBs (Yidong & Xinxin, 2013; Ma, Zhou, Chen & Dong, 2019; Trong Tuan, 2017; Amabile, 1988; Ganta, 2014; Hughes et al., 2018; Gerhart & Fang, 2015), research exploring OBs and CBs and AL as a whole concept, on the one hand and IWBs on the other, has not been studied before with the addition of motivational processes linking the two. So far, researchers have mainly focused on direct effects between AL, OBs and CBs and IWBs. To our knowledge, there are few studies aiming to

identify mediation mechanisms in this knowledge area (Amankwaa, Gyensare & Susomrith, 2019; Luu, 2017; Tung, 2016; Yidong & Xinxin, 2013; Zacher & Wilden, 2014).

By conducting this research and by studying the different mechanisms leading to IWBs, we aimed to shed more light on AL, which is a relatively new leadership concept, and its two components, OBs and CBs. Doing so, this research aspired to extend previous research that has been done on AL, IWBs and motivation. The results were expected to develop a better understanding on how this leadership behavior may contribute to increase IWBs in organizations. This could provide positive long-term effects for organizations in terms of effectiveness and efficiency. By conducting this research, we expected to find answers to the following questions:

What is the effect of opening behaviors (OBs), closing behaviors (CBs) and ambidextrous leadership (AL) on innovative workplace behaviors (IWBs)?

Are these effects mediated by intrinsic (IM) and extrinsic motivation (EM)?

Literature review

Motivational processes

The literature argues that motivational processes play an important role in IWBs, since motivation makes people go beyond their regular work tasks and requires to challenge the accepted practices (Yidong & Xinxin, 2013). A general way to define motivation is by describing it as ‘a power that strengthens behavior, gives route to behavior and triggers the tendency to continue’ (Martin & Bartol, 1998). That means that, in order to experience motivation, an individual needs to experience a desire to accomplish something or some goal in order to have a feeling of being motivated (Manzoor, 2012). Motivation can be divided into two categories: intrinsic and extrinsic motivation. Intrinsic motivation (IM) is defined as the willingness to engage in and persist with a certain task with the reward of the task itself as a

result. An intrinsically motivated individual has the ambition to perform and complete a task, without external reasons (Hughes et al., 2018; Ganta, 2014; Zhang & Bartol, 2010). Reiss (2004) explains that IM is frequently seen by theorists as concerning ego motives, for example curiosity or autonomy. The result of this is an experience of enthusiasm and a feeling of competence and self-determination (Deci, Cascio & Krusell, 1975). This, in turn, results in creativity, flexibility and spontaneity (Deci & Ryan, 1985). These resulting processes have a great deal of overlap with creativity, which is critical for IWBs (Rosing et al., 2011). Ramamoorthy, Slattery & Sardesai (2005) confirm this by stating that engaging in IWBs is a consequence of IM. In other words, intrinsically motivated individuals will exhibit more IWBs in their jobs. In the current research, we aimed to investigate the relationship between IM and IWBs further. A relationship between IM and IWBs has been established by previous research (Gerhart & Fang, 2015; Fairbank & Williams, 2001). Further research (Li, Wei, Ren & Di, 2015) hints towards a (partial) correlation between IM and employees' performance. Li et al. (2015) indicated that IM positively affects employees work behavior, for example that more IM among employees leads working more proactively and carrying out more innovation. These findings open the road to more research into the relationship between IM and IWBs, which brought us to the proposition of the following hypothesis:

H1: There is a positive relationship between intrinsic motivation (IM) and innovative workplace behaviors (IWBs)

Extrinsic motivation (EM) has been considered as the counterpart of IM. Reiss (2004) explained EM as a kind of drive, since this concerns biological survival needs, for example pain avoidance. This makes that EM is generally based on external rewards that are acquired after successfully performing. External rewards can, for example, be a monetary reward or social recognition (Ganta, 2014). If followers do not perform up to the standard, they are being reprimanded. If they perform well, they are rewarded (Hughes et al., 2018). Gerhart & Fang (2015) discussed the existence of a reason that organizations that are currently viewed as highly innovative are also among the highest paying companies and concluded a high level of EM

within these companies. Fairbank & Williams (2001) have suggested ahead of Gerhart & Fang (2015) that extrinsic rewards should be used to encourage participation and innovation among employees by giving rewards for participation, and giving higher rewards for good suggestions. This has been supported by Ramamoorthy et al. (2005), who indicated that the extrinsic motivation of pay directly positively influenced the IWBs of employees. The above-mentioned studies suggested that EM is positively related to IWBs. In line with this, Hu & Randell (2014) explained that extrinsic incentives contribute to achieving integrations within teams. This is essential for, among others, innovation within teams. Furthermore, Montoro-Sánchez, Soriano, Zhou & Zhang (2011) have studied the effects of rewards, which is an important example of EM, on innovative behaviors of employees. From their research they concluded that tangible rewards would be crucial in order to encourage innovative behavior within employees. A similar conclusion was reached by Antikainen & Vaataja (2010), who did research at monetary and non-monetary rewards for innovation in open-innovation communities. According to their findings, almost half of their respondents said to find a monetary reward as very important, and almost a quarter of their respondents listed it as important. Based on the above reached conclusions from earlier research, the following hypothesis was formed:

H2: There is a positive relationship between extrinsic motivation (EM) and innovative workplace behaviors (IWBs)

Leadership and motivation

In the current study we will be taking a look at the factors instilling motivation in followers. Leadership is an important factor in creating the aforementioned phenomenon of motivation in followers, which has been established by Lee, Legood, Hughes, Wei Tian, Newman & Knight (2020). Leadership has always been a concept that is hard to define (Silva, 2016). Summerfield (2014) has described the fundamental of leadership in three simple words: ‘making things better’. Looking further, into this subject, leadership is a process of interactive influence and, when successful, leading to acceptance of the leadership in order to achieve the common goal. This is influenced by its given context, the leader itself and the followers (Silva, 2016). Since

leadership is important for inducing motivation in followers, the current research examined the role of leadership behaviors by spreading IM and EM in followers, which in turn leads to IWBs. Specifically, this study has claimed that leaders' OBs stimulate IM, and leaders' CBs stimulate EM in followers.

Opening behaviors (OBs) are defined as follows: "Leader behaviors that motivate followers to search for and experiment with new ideas and alternatives, to think and to do things differently and independently, to take risks and to challenge established routines" (Ceri-Booms, Stouten & Wendst, 2020). Thus, OBs foster and stimulate exploration of new ideas with the main aim to implement or to improve the current situation (Rosing et al., 2011). This form of leadership enables independent, and creative thinking which leads to the activation of IWBs among employees (Zacher & Wilden, 2014; Zacher & Rosing, 2015; Rosing et al., 2011; Trong Tuan, 2017; De Jong, 2006). The encouragement and autonomy given to the followers by leaders' OBs stimulate IM in followers to adopt generative and especially exploratory thinking processes (Sosik, Avolio & Kahai, 1977). These processes, which lead to aspect of creativity of innovation, have been suggested by multiple studies to be a key factor for workplace innovation (Ma, Zhou, Chen & Dong, 2019; Trong Tuan, 2017; Amabile, 1988; Ganta, 2014). The connection between creativity and IM has also been established by Steele, McIntosh & Higgs (2017). They have indicated that IM plays a crucial role in the motivation of creative performance. In the current study, we examined the relationship between OBs and IM. Explorative behavior, which is a crucial factor contributing to OBs (Rosing et al., 2011), has been linked to IM before by Ryan & Deci (2000) and by Martens, Bastiaens & Kirschner (2007), who studied the relationship between IM and self-reported explorative behavior among students and found that these are highly correlated, because students who are intrinsically motivated accomplish and explore more, probably as a result of increased curiosity. This brought us to the following hypothesis about a possible relationship between OBs and IM in the current study:

H3: There is a positive relationship between opening behaviors (OBs) and intrinsic motivation (IM).

Secondly, closing behaviors (CBs) are also positively related to IWBs (Rosing et al., 2011). The definition used for CBs in the current study is as follows: “Leader behaviors that motivate followers to streamline and narrow down their thinking, to coordinate their existing knowledge, to avoid risk-taking, to stick to rules and routines, and to focus on efficiency, goal orientation and execution of their ideas” (Ceri-Booms, Stouten & Wendt, 2020) CBs stimulate especially exploitation of existing methodologies and knowledge, which stimulates implementation. Implementation is, along with creativity, a very important aspect of innovation (Rosing et. al., 2011). In short, one could argue that CB is about encouraging followers to follow guidelines and rules and to focus on their goals (Gerhart & Fang, 2015). The current research will have examined the relationship between CB and EM. Rosing et al. (2011) have suggested that leaders’ CBs are positively related to exploitation in followers, and Garcia (2016) has hypothesized that followers who more are extrinsically motivated could be involved more in exploitative behavior, when they demonstrate high assessment orientation. These findings led us to the following hypothesis:

H4: There is a positive relationship between closing behaviors (CBs) and extrinsic motivation (EM)

In conclusion, OBs and CBs in leaders seem to both indicate to contribute substantially to IWBs via two different paths, namely OBs via IM and CBs via EM (Rosing et al., 2011). This brought us to the next step of the current study, which could point towards IM and EM as mediators in the mentioned paths. Mediation means that the relationship between two variables, can be explained by a mediator. In the case of this study, this would mean that OBs cause IM, which in turn causes IWBs, and CBs cause EM, which in turn causes IWBs (MacKinnon & Luecken, 2008).

Previous researches in this field about mediation mechanisms were for example a study by Amankwaa, Gyensare & Susomrith (2019) in which they studied transformational leadership and IWB with the mediating role of job autonomy, affective commitment and supportive management. Another study was conducted by Luu (2017) who did research on AL and

operational performance, with entrepreneurial orientation as a mediator. Tung (2016) studied transformational, ambidextrous and transactional leadership with employee creativity. The mediator in this research was empowerment and promotion focus. Few previous studies have aimed to identify motivation as a mediator in combination with leadership and innovation. For instance, Yidong & Xinxin (2013) investigated IM as a mediator between ethical leadership and IWBs. And Fischer, Malycha & Schafmann (2019) have studied the relationship between IM and creativity/innovation performance with transactional and relational reward items. In their research, they have found a positive relationship of EM, IM and relational rewards on creativity/innovation performance. Subsequently, Zacher & Wilden (2014), who conducted a diary study on ambidextrous leadership and employee innovation, proposed that it is important to examine mediators and provided as an example employee behaviors in relation to ambidextrous leadership and employee innovation.

The current research argued first, based on conclusions from previous research (Fischer, Malycha & Schafmann, 2019) that there is an effect between OBs and IWBs, and that this effect is mediated by IM. Second, the current research indicated that the effect of CBs on IWBs occurs through EM. Followers who are encouraged to follow guidelines and rules, and focus on their goals, might exhibit IWBs with an expectation that they will be extrinsically rewarded for it (Gerhart & Fang, 2015). We expected to find a relationship between CBs and EM, and between EM and IWBs, which in turn could point towards a mediation as well. Based on the conclusions drawn from earlier research, which was mentioned in the introduction of the earlier hypotheses, the following two hypotheses were proposed:

H5: Intrinsic motivation (IM) mediates the relationship between opening behaviors (OBs) and innovative workplace behaviors (IWBs)

H6: Extrinsic motivation (EM) mediates the relationship between closing behaviors (CBs) and innovative workplace behaviors (IWBs)

Ambidextrous leadership

Gupta, Smith & Shalley (2006) have defined the exploration and exploitation processes that come with OBs and CBs as conflicting. The role of these processes in compelling innovation is described by the term ambidexterity. It often appears that leaders who want to facilitate IWBs in their followers, do not display specifically opening or closing leadership behaviors (Rosing et al., 2011). They alternate between and combine OBs and CBs to manage both creativity and implementation aspects of the innovation process. Leaders deal with an ambiguity in having to motivate their employees to explore and be creative and at the same time carry out employee loyalty to standards, high levels of efficiency and productivity (Hunter, Thoroughgood, Myer & Ligon, 2011). Compared to when a leader only makes use of one of the two above named leadership behaviors, according to Zacher and Rosing (2015), the interaction between Obs and CBs predict higher levels of IWBs. Especially, IWBs are highest when OBs and CBs are high (Zacher & Wilden, 2014; Wang et al. 2020). The ability to switch between opening and closing behaviors is called ambidextrous leadership (AL) (Rosing et al., 2011; Zacher & Rosing, 2015; Tung, 2016). Shortly, it can be described as “the ability of leaders to foster both explorative and exploitative behaviors in followers by increasing or reducing variance in their behavior and flexibly switching between those behaviors” (Rosing et al., 2011). This flexibility component of AL is especially important. The literal definition of ambidexterity is being able to use both hands equally well, which refers to the ability of a leader to flexibly explore and exploit the right subjects at the same time, in order to increase IWBs in their followers (Zacher et al., 2016). If the leader prefers to use, for example, OBs more than CBs, this will have a negative effect on the IWBs that are expected as a result (Wang et al., 2020). Ambidextrous organizations are generally more successful since they are better able to innovate (Benner & Tushman, 2003; O’Reilly III & Tushman, 2013). For example, organizations in which exploration and exploitation are widely used have higher sales growth and organizational performance (He & Wong, 2004; O’Reilly III & Tushman, 2003). The current research studies the relationship between AL and IWBs. It argues that AL has an effect on IM and EM based on the explanations given above, and these forms of motivation will in turn influence IWBs. This hypothesis has not been studied before in this context. Rosing et al. (2011) have mentioned that they acknowledge motivation as an important subject when looking at innovative performance and AL, but they focused on

exploration and exploitation behaviors in their studies and decided not to concentrate on motivation. Keller (2006) has mentioned before that leaders can manipulate successful innovation through their impact of motivation. Here, transformational leadership is given as a leadership style that increases motivation. Transformational leadership and AL have multiple things in common. They are for example both about encouraging independent and creative thinking (Zacher & Rosing, 2015). Another more recent study by Berraies & El Abidine (2019) indicates that transformational leaders can accomplish IM among employees, which can in turn improve innovation. Bledow, Frese & Mueller (2015) indicate that ambidextrous leaders face multiple motivational challenges and have to change their leadership style in the right situation. This could indicate a mediating relationship between AL, motivation and IWBs. Concluding, prior research indicates a relationship between AL, motivation and IWBs, but it has not been studied before, especially with motivation divided into IM and EM. Indications from the above mentioned studies brought us to the last hypothesis in this study which implied a parallel mediation:

H7: Ambidextrous leadership has a positive indirect relationship with innovative workplace behaviors through intrinsic motivation (IM) and extrinsic motivation (EM)

Method

Participants

Data for this research was collected from 202 Dutch-speaking employees, of which 70 (34.7%) were male, and 132 (65.3%) were female. The age range was between 18 and 65 years. The average age was 35.5 years (SD = 0.95). In terms of tenure, people have worked an average of 3.9 years for their current supervisor (SD = 0.34) and an average of 10.7 years for their current employer (SD = 0.87). These employees all worked with a supervisor during the completion of the questionnaire. The participants that completed the questionnaire were working part-time or full-time for their current employer.

Procedure

All participants were recruited by the use of personal and professional contacts through e-mail or WhatsApp. They each had to complete a questionnaire online, which was sent in the form of a link to Qualtrics. Prior to the questionnaire, the participants were provided with a flyer containing information on the current study. Next, the introduction of the questionnaire contained an informed consent in order to make sure that the participants were informed and agreed in their participation. The questionnaire is a combination of different scales that will be described below. The scales are conducted in Dutch that have been translated from English to Dutch and then back translated from Dutch to English. In the end, the results of the translation were carefully compared with the original English version and the discrepancies were solved. At first, two different questionnaires were made and sent out for employees and their managers in order to be able to obtain dyad data. The leaders were asked to rate IWBs of their followers, whereas followers assessed all the variables. However, it became clear that the amount of managers who answered the questionnaires was too limited, which made this data not appropriate for usage in this study. For this reason, we decided to only use the data provided by the employees.

Measures

Opening behaviors, closing behaviors and ambidextrous leadership

Rosing et al. (2011) conducted research on leadership and corresponding behaviors, in which they have separated 7 different examples of leadership styles. They did this by identifying OBs and CBs in leaders. These examples of leadership styles have not formally been introduced as a scale to measure AL, even though multiple studies have actually used them for this purpose (Zacher & Rosing, 2015; Zacher & Wilden, 2014). Due to lack of an actual, validated scale to measure AL, Ceri-Booms, Stouten & Wendst (2020) have taken it upon themselves to develop this scale. They have identified several OB and CB items. These items have been thoroughly checked by different professional judges, which led to some exclusions and alterations in the items. Next, the content validity was evaluated by experienced professionals. At last, after the scale was finished, 12 items for OB and 10 items for CB maintained in the newly developed

scale. In sum, this scale has been used in the current research to measure three dimensions: OBs, CBs and AL as a whole concept. How AL was computed will be explained in the data analysis section. A reliability analysis was conducted in SPSS to find the Cronbachs alpha for every scale in the current study. For OBs, a Cronbachs alpha of .90 was found. For CBs, we found a Cronbachs alpha of .79. An example of an item for OBs is *'My manager encourages me to take risks'* and an example of an item for CBs is *'My manager encourages me to follow rules and guidelines'*.

Innovative workplace behaviors

The innovative work behaviors scale by De Jong (De Jong & Den Hartog, 2010; Hughes et. al., 2018) is the scale that was used to measure IWBs. It measures different aspects of innovation namely creativity and implementation, but is often used to analyze IWBs as a whole construct. They have tested four dimensions that related to IWBs, but they found weak indications of the distinctiveness of these dimensions. They suggest themselves what IWBs could possibly be a unidimensional construct, after discovering high inter-correlations between the dimensions, which is why we decided to take IWBs into account as a unidimensional construct. The Cronbachs alpha is .93, according to the reliability analysis for the current study. The scale consisted of 10 items in total. Each item is rated with a seven-point Likert scale (1 = never, 7 = always). One example of an item for an employee is: *'How often do you wonder how things can be improved?'*. The scale had to be adjusted in order to be able to be filled in by the leaders. One example of an item for a leader is *'How often does your employee wonder how things can be improved?'*.

Extrinsic motivation

To measure EM at the workplace, part of a scale developed by Kuvaas, Buch, Weibel, Dysvik & Nerstad (2017) has been used. This part of the scale consists of 4 items. The items have to be rated on a 7-point Likert scale (1 = totally agree, 7 = totally disagree). The reliability analysis has provided a Cronbachs alpha of .90. One example of a question is *'If I am supposed to put in extra effort in my job, I need to get extra pay'*.

Intrinsic motivation

To measure IM at the workplace, 3 items from the scale developed by Menges, Tussing, Wihler & Grant (2017) and 2 items developed Kuvaas et al. (2017) were combined. A 7-point Likert scale (1 = totally agree, 7 = totally disagree) has been used for assessment. A Cronbachs alpha of .90 was calculated with the reliability analysis for this study. An example of one of the items is '*I do this job because ... I enjoy the work itself*'.

Control variables

The demographic variables acquired from the questionnaire are age, gender, tenure with current leader (tenure L), total amount of years with working experience and tenure with current organization. For the current research, the decision was made to include age, gender and tenure L as control variables. The reason for including age, is that evidence in previous literature has been found for a relationship between employee age and innovative performance (Schubert & Andersson, 2015; Wallace, Butts, Johnson, Stevens & Smith, 2016). Next, according to Alsos, Hytti & Ljunggren (2013), innovation can be exposed to be a 'highly gendered field'. They also indicate for innovation to be not only a source, but also a reaction on gender relations (Wajcman, 2010; Alsos, et al.; 2013). For this reason, gender was included as a control variable. At last tenure L was included since a relationship between performance, innovation and tenure has been found in earlier research (Steffens, Shemla, Wegge & Diestel, 2014).

Data analysis

For the data analysis, Qualtrics was used to prepare and administer the questionnaire. PROCESS (Hayes, 2012) in SPSS Statistics 25 (IBM, 2017) was used for the calculation of the mediation with control variables. For the hierarchical regression analysis, SPSS Statistics 25 (IBM, 2017) was used. According to the power analysis, a total of at least 175 respondents were needed, which is reached in the sample size. The participants that did not complete the questionnaire were excluded from the data set. After checking for normality and outliers, the results from eight participants were excluded from further analysis. This left us with the eventual number of 194

participants to be included in the study. The descriptive statistics for this sample can be found in Table 1. Additionally, personal information was deleted beforehand to secure the participants' anonymity.

For the tests of hypothesis 1, 2, 3 and 4, a simple hierarchical regression was computed in SPSS, in which three control variables were included: gender, age and tenure with leader (tenure L). Hypothesis 5 and 6 were tested with the mediation analysis in PROCESS, again with the above named control variables as covariates.

For the testing of hypothesis 7, we first needed to compute AL results. Since an important aspect of AL is the flexibility of switching between OBs and CBs, it is important to make sure that we were taking this flexibility component into account in the testing of the AL results. In order to do this, we used a formula that lays its focus on flexible leadership (Kaiser & Overfield, 2010). They suggested the 'mastery of opposites' approach, in which flexible leadership can be considered including capability with opposing but at the same time complementary behaviors. This approach has proven to be better predictive of important outcomes compared to the 'competency approach' that was often used before (Kaiser, Lindberg & Craig, 2007). These behaviors are meant to be fitting under different circumstances (Kaiser & Overfield, 2010). The formula that were used to calculate AL is as follows: $AL = ((7-1)-(ABS(Closing-Opening))) * ((Closing+Opening)/2)$. After determining the AL results, a parallel mediation was executed. In the end, a separate mediation analyses was run to check a possible interdependence between IM and EM.

Results

The data was tested with a total of 194 participants (Table 1). The correlations between the different variables that were measured can be found in Table 2. We tested the outcomes for hypothesis 1, 2, 3 and 4 with the control variables 'age', 'gender' and 'tenure L'. The β coefficients were calculated with a 95% bootstrapping confidence interval. The results are provided in Table 3.

For H1, ‘a positive relationship between intrinsic motivation (IM) and innovative workplace behaviors (IWBs)’, evidence in Table 3 provides significant results, and IM explained 9% of the total variance ($\Delta F(1, 189) = 20.42, p < .05, \Delta R^2 = .09$). Furthermore, gender ($b = -.22, t(190) = -3.09, p < .05, R^2 = .05$) and tenure L ($b = .19, t(190) = 2.69, p < .05, R^2 = .04$) were also found to have a significant relationship with IWBs.

The β coefficient value from Table 3 confirms H2, ‘a positive relationship between extrinsic motivation (EM) and innovative workplace behaviors (IWBs)’, showed a significant relationship as well. EM explained 6% of the total variance ($\Delta F(1, 189) = 12.81, p < .05, \Delta R^2 = .06$). Additionally, gender ($b = -.22, t(190) = -3.09, p < .05, R^2 = .05$) and tenure L ($b = .19, t(190) = 2.69, p < .05, R^2 = .04$) were both found to have a significant relationship.

After testing H3, ‘a positive relationship between opening behaviors (OBs) and intrinsic motivation (IM)’, the output in Table 3 showed a significant relationship, since the β estimate was proven to be significant. 7% of the total variance is explained by OB ($\Delta F(1, 189) = 17.37, p < .05, \Delta R^2 = .07$). Other predictors that showed a significant relationship were age ($b = .24, t(190) = 3.33, p < .05, pR^2 = .06$) and tenure L ($b = .20, t(190) = 2.83, p < .05, pR^2 = .04$).

The test for H4 ‘a positive relationship between closing behaviors (CBs) and extrinsic motivation (EM)’ showed a significant relationship between the two variables or the β estimate in Table 3. 3% of the total variance was explained by CB. Significant relationships were shown for age ($b = .21, t(186) = 2.87, p < .05, pR^2 = .04$) and tenure L ($b = .18, t(186) = 2.56, p < .05, pR^2 = .03$) as well.

Table 1. *Demographic characteristics of sample*

Demographic characteristics	N	Frequency (%)
Gender		
Male	68	35.1
Female	126	64.9
Total	194	100.0
Age (years)		
18-24	45	23.2
25-29	27	13.9
30-34	14	7.2
35-39	15	7.8
40-44	16	8.2
45-49	21	10.8
≥ 50	56	28.9
Total	194	100.0
Tenure with leader		
< 2	90	46.4
2-5	64	33.0
6-9	16	8.2
10-13	12	6.2
≥ 14	12	6.2
Total	194	100.0

Table 2. Means, standard deviations, and Pearson correlation matrix ($n = 194$)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. OB	5.16	.94	-				
2. CB	4.87	.80	.38**	-			
3. IWBs	4.32	1.13	.21**	.25**	-		
4. EM	5.56	1.15	.31**	.20**	.32**	-	
5. IM	5.34	1.16	.32**	.22**	.37**	.98**	-

** $p < .01$

Table 3. β coefficients for H1-H4

Hypotheses	Path	β	S.E.	CR	95% CI	Significance
H1	IM \rightarrow IWB	0.32	0.069	4.52	[0.176, 0.450]	< 0.05 (**)
H2	EM \rightarrow IWB	0.26	0.071	3.58	[0.113, 0.392]	< 0.05 (**)
H3	OB \rightarrow IM	0.27	0.080	4.17	[0.175, 0.491]	< 0.05 (**)
H4	CB \rightarrow EM	0.16	0.094	2.86	[0.039, 0.410]	< 0.05 (**)

Continuing, in order to test for hypothesis 5 and 6, mediation analyses were run. The results of these analyses were summarized in Table 4. For H5, ‘Intrinsic motivation (IM) mediates the relationship between opening behaviors (OBs) and innovative workplace behaviors (IWBs)’ IWBs was taken as the dependent variable, OB as the independent variable and IM as a mediator. Demographics as ‘age’, ‘gender’ and ‘tenure with current L’ were controlled. The results in Table 4 indicated a full mediation. The relationship between OB and IM was significant ($b = .33, t(189) = 4.17, p < .05$), as well as the relationship between IM and IWB ($b = .29, t(188) = 3.99, p < .05$). The relationship between OB and IWB is significant as well ($b = .19, t(189) = 2.35, p < .05$), but after controlling for IM, the direct effect between variables became non-significant ($b = .10, t(188) = 1.18, p = .240$). Thus, the results supported a full mediation between OB and IWBs through IM (Indirect = .10, SE = .04, 95% CI [.03, .18]).

H6, ‘Extrinsic motivation (EM) mediates the relationship between closing behaviors (CBs) and innovative workplace behaviors (IWBs)’ was tested in the same manner. IWBs was

taken as the dependent variable, CB as the independent variable and EM as a mediator. Recurrently, ‘age’, ‘gender’ and ‘tenure L’ were controlled. The results indicated a partial mediation. The relationship between CB and EM was significant ($b = .22, t(185) = 2.39, p < .05$), as well as the relationship between EM and IWBs ($b = .19, t(184) = 2.52, p < .05$). The relationship between CB and IWBs was tested as significant ($b = .32, t(185) = 3.32, p < .05$), and after controlling for EM, the direct effect remained significant ($b = .27, t(184) = 2.88, p < .05$). Concluding, the results argued a partial mediation (Indirect = .04, $SE = .02, 95\% CI [.00, .10]$).

Table 4. Bootstrapping results for indirect effects

Path	Indirect estimate	S.E.	Z	Sig.	Bootstrapping			
					95% CI (Percentile)	UPCI	95% CI (Bias-Corrected)	ULCI
OB → IM → IWB	0.10	0.038	2.63	(**)	0.03	0.18	0.03	0.16
CB → EM → IWB	0.04	0.024	1.67	(**)	0.00	0.10	0.00	0.07
AL → IM → IWB	0.06	0,022	2.73	(**)	0.02	0.10	0.08	0.46
AL → EM → IWB	-.04	0,018	-2.22	(**)	-0.07	-0.01	-0.36	-0.04

Finally, in order to test hypothesis 7, a parallel mediation was carried out to test the relationships between AL, IM and EM, and IWBs. The results of this mediation are summarized in Figure 2 and Table 4. The variables age, gender and tenure L were again included as control variables in this model. Results showed a significant positive relationship between AL and IM ($b = .05, t(185) = 3.27, p < .05$), when controlled for EM, and also a significant positive relationship between AL and EM ($b = .04, t(185) = 2.78, p < .05$), when controlled for IM. When both mediators were controlled, the direct relationship between AL and IWBs became non-significant ($b = .03, t(183) = 1.94, p = .053$). But there was still a positive significant relationship between IM and IWBs ($b = 1.12, t(183) = 3.91, p < .05$) and a negative significant relationship between EM and IWBs ($b = -.9, t(183) = -3.14, p < .05$). The total effect model showed that when there is not being controlled for IM and EM, the relationship between AL and IWBs would be positively significant ($b = .05, t(185) = 3.05, p < .05$). As you can see in Table 4, the bootstrapping effects

of the path of CB, EM and IWB seems to include zero, but this has to do with rounding the numbers. So in fact, it did come close to zero but did not include this, which made this finding marginally significant.

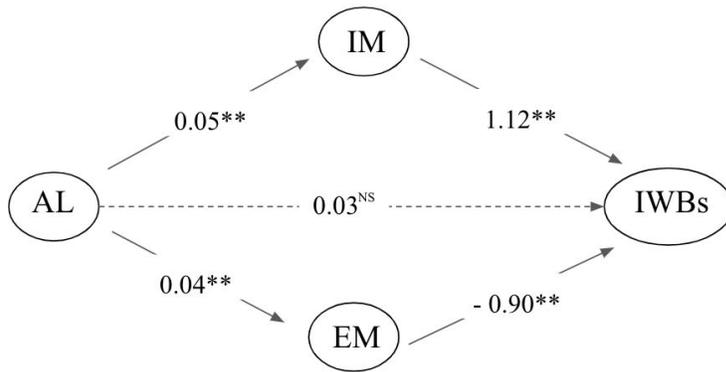


Figure 2: Parallel mediation test β coefficients

As shown in Figure 2, the path between EM and IWBs became negative, even though the results on the paths between CB, EM and IWBs had a positive outcome when this was tested before (Table 3). This change can be due to either the inclusion of AL or IM in the parallel mediation analysis. To investigate the reason for this change, a mediation analysis was carried out between CB and IWBs, with EM as a mediator, while controlling for IM next to the other control variables. The results indicated that, when IM was included as control variable, the significant relationship between CB and EM did no longer exist ($b = -.03$, $t(184) = -1.20$, $p = .232$). The results also showed significant positive relationship between CB and IWBs ($b = .23$, $t(183) = 2.44$, $p < .05$), and a negative significant relationship between EM and IWBs ($b = -.90$, $t(183) = -3.18$, $p < .05$). The mediation effect has showed to not be significant, since the bootstrapping effects included zero in the test results (Indirect = .03, SE = .03, 95% CI [-.02, .08]).

Discussion

Interpretation of the results

By conducting this research, we have tested the relationship of OBs, CBs and AL on IWBs and examined if these effects are mediated by IM and EM. First, we examined the relationships between IM and IWBs, EM and IWBs, OB and IM and CB and EM. These relationships were all found to be significant and positively related.

The positive relationship between IM and IWBs illustrates that people who are intrinsically motivated, will engage more in IWBs, which was previously supported in the literature (e.g. Ramamoorthy et al., 2005). A potential explanation for this, is that intrinsically motivated people work more proactively (Li et al., 2015).

Next, the positive significant relationship between EM and IWBs shows that individuals who are extrinsically motivated participate more in IWBs. Extrinsic rewards can encourage employees to participate in IWBs (Ramamoorthy et al., 2005), and offering higher rewards for good suggestions influences IWBs as well (Fairbank & Williams, 2001). This is in line with earlier research by Zhou & Zhang (2011), who studied rewards and how rewards affect IWBs, and came to the conclusion that rewards do affect IWBs positively. Baer, Oldham & Cummings (2003) suggested a positive relationship between extrinsic rewards and creativity, for employees with an adaptive cognitive style with comparatively simple careers. As mentioned before, creativity is an important aspect of IWBs (Rosing et al., 2011).

Furthermore, the positive relationship between OB and IM reveals that individuals who express more OBs are more likely to be intrinsically motivated. Sosik et al. (1977) supported this finding by stating that OBs in leaders stimulate the corresponding encouragement and autonomy that comes with this leader behavior. This in turn stimulates IM.

Moreover, the significant positive relationship between CB and EM has been supported by Gerhart & Fang (2015), who suggested that people who follow guidelines and focus on their goals, which is important in CBs, could increase in IWBs with an expectation to receive extrinsic rewards for this behavior.

In addition, whenever IM is involved, the direct relationship between OB and IWBs disappears. This indicates that the relationship between OB and IWBs fully occurs through IM. When OB increases, IM will increase, which will cause IWBs to increase. In conclusion, according to the current study the association between OB and IWBs is entirely explained by IM. Sosik et al. (1977) have suggested earlier that leaders OBs stimulate IM, which in turn leads to the creativity aspect of innovation (Ganta, 2014).

For CB, this occurrence is slightly different. When EM is involved, the direct relationship between CB and IWBs will continue to exist. The relationship between CB and IWBs happens partly through EM. This implies that when CB increases, IWBs will increase partly because of EM which indicates that there should be other mediators at play in this relationship. As Gerhart & Fang (2015) have mentioned, when CBs are expressed, followers might exhibit IWBs with the expectation to be extrinsically rewarded for this. The study by Fischer et al. (2019) has suggested relationships between these variables as well, but were not able to demonstrate a clear positive mediating relationship. Other possible mediators for the relationship between CBs and IWBs could be the variables age, gender and tenure L that were included in every analysis as covariates, since they exhibited significant relationships in some results. Another mediator, for example, could be creative self-efficacy. Creative self-efficacy is about the belief of an individual to be able to generate creative outcomes, and it is crucial in the prediction of creativity and performance among employees. When creative self-efficacy increases, the employee feels more supported, which can encourage IWBs in this employee (Tierney & Farmer, 2002; Tierney & Farmer, 2011; Gong, Huang & Farth, 2009). Tierney & Farmer (2004) indicated before that creative self-efficacy is a mediator between supervisor expectations, supervisor behaviors and employee view on creative performance, which makes it interesting to take a look at self-efficacy as a mediating factor in the relationship between CBs and IWBs, next to EM. Another possible mediator could be psychological empowerment, since this has been found before to be a mediator in the relationship between leadership style and creativity, and creativity is an important aspect of IWBs (Rosing et al., 2011). For example, Gumuslugoli & Ilsev (2009) have established a positive relationship between transformational leadership and creativity outcomes, with psychological empowerment as a mediator, but research in which CBs are examined in this

relationship instead of transformational leadership has not been done before. Zhang & Bartol (2010) have studied psychological empowerment as a mediator between the relationship between empowering leadership and employee creativity, and also confirmed this mediating mechanism in their research.

The influence of AL on IWBs was examined with the help of a parallel mediation of IM and EM. The results have shown that IM and EM indeed are the parallel mediators on the relationship between AL and IWBs. However, contrary to our expectations. IM has a positive influence in this relationship, while EM exhibited a negative relationship. This indicates that the positive relationship between EM and IWB becomes negative when IM was controlled in the parallel mediation. In order to understand if the same results could be obtained with CBs, a separate mediation analysis was run by taking CB as a dependent variable, IWBs as the dependent variable, EM as a mediator and IM as an extra control variable next to age, gender and tenure L. The results showed that, whenever IM was included as an extra control variable, the relationship between CB and EM became non-significant and the relationship between EM and IWBs turned significantly negative. As mentioned before, the relationship between EM and IWBs showed a positive significant relationship before when IM was not included as a control variable. These outcomes do indicate that IM and EM might be more interdependent than expected before the start of this research. More future research is needed in order to draw conclusions about these unexpected findings.

Furthermore, the positive mediation of IM on the relationship between AL and IWBs is supported by Zacher & Rosing (2015) and by Bledow et al. (2015), who implied that ambidextrous leaders who deal with motivational challenges lead to innovation.

Theoretical implications

This study contributes to the existing literature on AL, OB, CB, IWBs, IM and EM, since it examined relationships that have not been tested before. For example, research on OB, CB, AL and IWBs has not been done before with the addition of motivation as a mediation mechanism, and this study has indicated that there is still much to explore in this field. This study has provided more knowledge on the concept of AL and it has extended the already existing

literature. First, the study implicates that the relationship between the variables is to a higher level dependent on motivational mechanisms than prior research has suggested. For example, there was little information available about the relationship between CB and IWB with the addition of EM. This study however clearly implicates a significant relationship. This could open the road to future research on these mechanisms and provide new insights. In hindsight, it might have been too early to study the relational mechanisms between CB and IWB with the addition of EM. When looking at prior research, it became clear that there was more evidence on the relationship between OB and effects on innovation than CB and the effects on innovation (Zacher & Rosing, 2015; Zacher & Wilden, 2014). On the other hand, this study did help with extending knowledge on CB and the results have provided more information on this relationship.

Second, the current research established the importance of AL, when looking at IWBs and how this relatively new leadership style can contribute to IWBs. Gerlach, Hundeling & Rosing (2020) have implied a relationship between OB, CB and innovation before, and have also suggested that the ambidextrous interaction between these two should be positively related to IWB. Unfortunately, their results did not support this last suggestion. They suggest themselves that this could be due to the importance of the flexibility and timing component of AL. Rosing et al. (2011) has suggested before that the situational requirements are crucial for AL to find a positive relationship. In the current study, we made use of a formula (Kaiser & Overfield, 2010) to take the flexibility component into account for the testing of the results, which could explain why we did actually find a positive significant relationship between AL and IWB when IM and EM were not being controlled. By studying the interaction between OB and CB with help of the named formula, and also studying OB and CB effects separately, knowledge from earlier studies on AL is extended (Zacher et al., 2016).

Practical implications

The results of the current research have shown the importance of AL, OBs and CBs for IWBs. For organizations, these results show that successful AL can help to improve innovative behaviors among employees in different ways. First, organizations should focus during their selection of future team leaders on their ability to flexibly switch between opening and closing

behaviors as the situation requires, in order to stimulate innovation. This can also be stimulated by, for example, providing trainings for leaders in which they can improve and develop their OBs and CBs. Next, it is important for leaders in organizations to use their OBs and CBs in a manner that stimulates motivation. The current research studied IM and EM, and the results have shown that especially IM is an important factor in the relationship between leaders' OBs and IWBs. This indicates that, when a leader makes use of OBs as the situation requires and AL, and stimulates IM through this process, will have more influence on employees' IWBs. This can as well be improved by providing trainings in which leaders can learn more about motivational mechanisms in general, IM and how to stimulate IM among their employees while making use of AL and OBs.

Limitations

To start, it can be noteworthy to take the cross-sectoral nature of the study into account. Causality can not be concluded from the results of this study, we can only conclude relationships. For example, it might be that IM influences OB instead of the other way around. Besides, the control variables we took into account were age, gender and tenure L. The neglecting of other variables, which could possibly be significant control variables, should be studied more in order to draw more specific conclusions. This could, for example, be important when looking at the relationship between CB and IWBs with EM as a partial mediator, since it is feasible that there is another variable in this relationship we should have taken into account.

Next, even though in this study the hypotheses were proven, COVID19 and its consequences might have influenced the way the participants filled in the questionnaire. The study has been conducted among the participants at the time the corona lockdown started in the Netherlands. This might have influenced the way that employees look at their professional environment and their coworkers, since everyone had to get used to working from home. In addition, managers may have acted differently or not according to their regular leadership style, since he or she had to adapt to this sudden new working situation. This could have resulted in people not knowing how to answer questions in the questionnaires, or employees to be biased

based on how a manager has recently acted. This might cause the current research to not be generalizable.

At last, the questionnaire was quite long, which caused people to drop out halfway through. This way we were missing out on some participants. It might be that it is a specific kind of personality type that did take the time to finish the questionnaire, and a specific kind that dropped out halfway, which could make the results not completely generalizable to employees in general.

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Appendix

Appendix 1: Ambidextrous Leadership Scale

Can be obtained by Meltem Ceri-Booms. For information on this scale she can be contacted via s.m.ceri-booms@uu.nl

Appendix 2: Innovative Work Behaviors Scale (De Jong & Den Hartog, 2010)

10 items Original

How often does this employee (or leader) . . .

- . . . pay attention to issues that are not part of his daily work?
- . . . wonder how things can be improved?
- . . . search out new working methods, techniques or instruments?
- . . . generate original solutions for problems?
- . . . find new approaches to execute tasks?
- . . . make important organizational members enthusiastic for innovative ideas?
- . . . attempt to convince people to support an innovative idea?
- . . . systematically introduce innovative ideas into work practices?
- . . . contribute to the implementation of new ideas?
- . . . put effort in the development of new things?

Dutch translation

Hoe vaak doet u als werknemer (of uw werknemer) aan . . .

1. Aandacht besteden aan problemen die niet onderdeel zijn van zijn/haar dagelijkse bezigheden?
2. Zich afvragen hoe dingen verbeterd kunnen worden?
3. Uitzoeken van nieuwe werkmethoden, technieken of instrumenten?
4. Generen van originele oplossingen voor problemen?

5. Vinden van nieuwe benaderingen om taken uit te voeren?
6. Belangrijke organisatorische leden enthousiast maken voor innovatieve ideeën?
7. Proberen mensen te overtuigen om innovatieve ideeën te ondersteunen?
8. Het systematisch introduceren van innovatieve ideeën in de praktijk?
9. Bijdragen aan de implementatie van nieuwe ideeën?
10. Moeite stoppen in het ontwikkelen van nieuwe dingen?

Appendix 3: Extrinsic Motivation Scale (Kuvaas et. al., 2017)

Original 4 items:

- If I am supposed to put in extra effort in my job, I need to get extra pay
- It is important for me to have an external incentive to strive for in order to do a good job
- External houses such as bonuses and provision are essential for how well I perform my job
- If I had been offered better pay, I would have done a better

Dutch translation

- Als het de bedoeling is dat ik meer inspanning lever in mijn werk, dan moet ik ook extra betaald worden.
- Het is belangrijk voor mij om te streven naar een externe beloning om mijn werk goed te doen.
- Extra's, zoals een bonus of provisie, zijn essentieel voor hoe goed ik mijn werk doe.
- Als ik een beter salaris aangeboden had gekregen, zou ik mijn werk beter gedaan hebben

Appendix 4: Intrinsic Motivation Scale

Menges et. al. (2017):

Original 3 items

I do this job because ...

- I enjoy the work itself.

- I find the work engaging.
- I find the work interesting.

Dutch translation

I doe dit werk omdat...

- Ik geniet van het werk zelf.
- Ik me door mijn werk betrokken voel.
- Ik het interessant vind.

Kuvaas et. al. (2017) - 2 additional items to the above named scale:

Original 2 items

- My job is meaningful.
- Sometimes I become so inspired by my job that I almost forget everything else around me.

Dutch translation

- Mijn werk is veelbetekenend.
- Soms word ik zo geïnspireerd op mijn werk dat ik bijna alles om me heen vergeet.