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Thesis

Ambidextrous leadership to stimulate innovative work behaviours: the roles of goal clarity and psychological empowerment

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Abstract

In this study the relationship between ambidextrous leadership and innovative work behaviours was examined in a parallel mediation model. The mediating variables in this research were goal clarity and psychological empowerment. Current research up to this point has mainly neglected the complications of the innovation process. This current research measures the effects of ambidextrous leadership, including its flexibility to match the requirements of the innovation process. The data for this research came from 198 respondents who answered an online questionnaire. The main result of this research is the mediating effect of psychological empowerment on the relationship between ambidextrous leadership and innovative work behaviours. Furthermore, there were several significant direct relationships between leadership and innovation. Concluding, this research helps to expand the theoretical framework on ambidextrous leadership, innovation, goal clarity and psychological empowerment. This study also introduces a new way of measuring ambidextrous leadership, which significantly increases the validity of the study.

Introduction

Workplace innovation is increasingly seen as an important antecedent of organizational effectiveness (Anderson, de Dreu & Nijstad, 2004), as it gives organizations a distinct competitive advantage (Zhou & Shalley, 2003). It concerns the processes applied when attempting to find and implement new ideas. Specifically, innovation involves some combination of problem/opportunity identification, the introduction, adoption or modification of new ideas germane to organizational needs, the promotion of these ideas, and the practical implementation of these ideas (Hughes, Lee, Tian & Newman, 2018). An important indicator of innovation, which is the focal dependent variable in the current study, is innovative work behaviour (IWB) of employees. IWB is typically defined as a broad set of behaviours related to the generation of ideas, helping the implementation of these ideas and creating support for them (Scott & Bruce, 1994; Janssen, 2000; De Jong & den Hartog, 2007).

As IWB is expected to result in innovative output, it is important for researchers to develop a good understanding of the predictors of IWB. Literature suggests that leadership is one of the most influential predictors of IWB (Manz, Bastien, Hostager, & Shapiro, 1989; Mumford, Scott, Gaddis & Strange; 2002, Rosing, Frese & Bausch, 2011). A leader that interacts daily with subordinates may, through certain behaviours, influence their subordinates' daily perceptions and feelings. This frequent interaction is expected to influence IWB (Amabile et al., 2000; Hughes et al., 2018). Multiple researchers, such as Hughes and colleagues (2018) and Rosing and colleagues (2011), called for more research on the relationship between leadership and IWB, as every leadership style has differential effects on subordinates' IWBs. Rosing et al. (2011) also claimed that the traditional leadership styles are too broad to study innovation, as these styles might both hinder or support innovation. Consequently, in their study they introduced a new leadership style, namely Ambidextrous

Leadership (AL) which is, according to them, the required leadership style in order to facilitate followers' IWBs.

Ambidextrous leadership is defined as the ability to foster both explorative and exploitative behaviours in followers by increasing or reducing variance in their behaviour and flexibly switching between those behaviours (Zacher & Rosing 2015; Rosing et al., 2011; Zacher, Robinson and Rosing, 2015). It consists of three components: (1) opening leadership behaviours to nurture exploration of new ideas, (2) closing leadership behaviours to nurture exploitation of the current knowledge, (3) the flexibility to switch between, adapt and balance both behaviours (Tuan et al., 2015). This leadership style proposes that effective leaders alternate between these two behaviours and tune their approach to the changing demands of innovation (Bledow et al., 2011). Several researchers (Bledow et al., 2011; Zacher et al., 2016; Trong Tuan, 2017; Tung, 2016) argued for the possible effectiveness of AL to promote IWB, by balancing the promotion of these behaviours that create variety and by fostering the convergent forces necessary to obtain goals.

However, while these researchers argued for the use of an ambidextrous leadership style, they also stressed the notion that there needs to be further development in the understanding of the relationship between AL, IWB and possible mediating variables that explain this relationship. As a response to this call, the current research will examine the mechanisms between AL and IWBs. Specifically, this research proposes a parallel mediation model and investigates the mechanisms linking opening and closing behaviours to IWBs. Specifically, it introduces psychological empowerment (PE) as a mediator between opening behaviours and IWBs and goal clarity as a mediator between closing behaviours and IWBs. Multiple researchers argued for IWB to be divided in to different dimensions of idea generation, idea championing and idea implementation (Kanter 1988; King & Anderson 2002). They argued that the conditions for innovation will theoretically be best understood if

one assumes the discovery and implementation of new ideas as separate stages. However, research by de Jong and Den Hartog (2010) indicated that the distinctiveness of the four dimensions was very weak. This result is in line with research by Janssen (2000), suggesting that IWB might be a unidimensional construct, because the dimensions would combine additively to create a measure of IWB. Therefore, this research will focus on IWB as a unidimensional construct. See figure 1 for a visual display of the entire model of this research.

This introduction leads to the following research question: How is ambidextrous leadership related to innovative work behaviours and do PE and goal clarity mediate these behaviours?

Literature Review

Ambidextrous Leadership

March (1991) claimed that organizations facilitate innovation by engaging in two activities: exploration and exploitation. The theory of ambidextrous leadership suggests that two components of AL, namely the opening and closing behaviours positively predict employees' exploration and exploitation behaviours respectively. Exploration requires and encourages experimentation with new ideas, in order to come up with alternatives superior to previous ideas (March, 1991; March 1995; Ahlers, 2017). Creative activities in exploration, however, often lack structure and therefore need exploitation (Ahlers, 2017). Exploitation aims for short-term improvements through elaboration on existing ideas (March 1991; Ahlers, 2017). In short term, exploitation has immediate returns, such as refining capabilities or clarifying pathways and goals (Ahlers, 2017). In the long run, path dependency, routines and bureaucracy can hinder IWB, in turn making exploration necessary in long-time projects (He & Wong, 2004). Therefore, previous research has shown that both exploration and exploitation are important to increase IWB (Benner and Tushman, 2003; Gibson and Birkinshaw, 2004; He and Wong, 2004).

As mentioned, exploration and exploitation are fostered by opening and closing leadership respectively. Opening leadership behaviours are defined as behaviours which motivate followers to search for and experiment with new alternatives and ideas; to think and to do things differently and independently; to take risks and to challenge established routines (Ceri-Booms, Stouten & Wendt, 2020). Examples of this are encouraging alternative methods for task accomplishment; motivating employees to take risks and allowing for errors to be made. Opening leadership behaviours are argued to address the creativity requirements of the innovation process, and thereby have a positive relationship with IWB (Gerlach et al., 2020; Zacher et al., 2016). On the other hand, closing leadership behaviours are defined as behaviours which motivate followers to streamline and narrow down their thinking; to coordinate their existing knowledge; to avoid risk-taking and to stick to rules and routines; to focus on efficiency, goal orientation and execution of their ideas (Ceri-Booms et al., 2020). These leader behaviours address the implementation requirements of the innovation process (Gerlach et al., 2020; Zacher et al., 2016).

AL entails both opening and closing behaviours and consequently stimulates both exploration and exploitation (Alghamdi, 2018; Ahlers, 2017). The closing and opening behaviours in AL have respectively been linked to partially resemble a transactional or transformational leadership style (Zheng, Xu, Wie & Hu, 2017; Luu, 2017; Wei, Yuan, & Di, 2010). Both leadership styles have been linked to IWB before (Avolio & Bass, 1988; Lee, Legood, Hughes, Tian, Newman & Knight, 2020; Syafaat & Balgiah, 2017), indicating the possibility for a relationship between AL and IWB. The most important part of the ambidextrous leadership model suggests that leaders should be able to flexibly apply the different leadership styles in line with the situational requirements of implementation and creativity (Gerlach et al., 2020; Kaiser & Overfield, 2010). Flexible leadership is vital to organizational performance and adaptability. Flexible leaders are able to both recognize what

the group needs to and respond accordingly. To measure this flexibility, a formula will be used, which is explained further on in this research.

As indicated before, exploitative behaviours among employees has positive short-term consequences, but is detrimental for future innovation (Ahlers, 2017). Similarly, only explorative behaviours among subordinates might make implementation of the new ideas difficult. Therefore, this research will also examine the effect of an interaction score of opening and closing leadership behaviours as a measurement of AL. Opening and closing leadership behaviours are complementary, because each of them responds to different innovation requirements, that the other one is not able to fulfil. As stated, leaders that are able to flexibly adjust between these behaviours and adapt to the requirements of the innovation task, are argued to foster ambidexterity in their employees and increase innovative work behaviours. This indicates that AL is specifically defined for innovation and has several advantages over traditional leadership styles with regard to innovation (Tuan et al., 2015; Ahlers, 2017; Bledow et al., 2011; Rosing et al., 2011; Gerlach et al., 2020). Based on the information provided above, the following hypotheses are formed:

Hypothesis 1: There is a positive relationship between opening behaviours and IWBs.

Hypothesis 2: There is a positive relationship between closing behaviours and IWBs.

Hypothesis 3: There is a positive relationship between AL and IWBs.

Psychological Empowerment and its mediating role

PE is defined as increased intrinsic task motivation, which is manifested in a set of four cognitions reflecting an individual's orientation to his or her work role: competence, meaning, impact and self-determination (Spreitzer, 1995). Competence alludes to feelings of self-efficacy, the perception that one is able to successfully complete a task (Bandura, 1986).

Meaning refers to the load individuals place on a given task based on an individual's standards (Pieterse, van Knippenberg, Schippers & Stam, 2010). Impact refers to the degree to which an employee's work makes a difference in achieving the purpose of the task and the extent to which an individual believes he or she can have an impact on the organizational outcomes (Pieterse et al., 2010). Lastly, self-determination refers to the feeling of autonomy in making decisions about work.

Literature suggests that leadership is strongly related to the dimensions of meaning, competence and impact. It is the leader behaviour which makes employees feel they possess a degree of autonomy, feel less constrained by rule-bounding and feel self-effective in enacting their work (Erturk, 2012; Rehman et al., 2019). Leaders achieve these results when they encourage followers to challenge the status quo and reward risk taking of their followers, in turn enhancing empowerment in followers (Liu et al., 2019; Pieterse et al., 2010). Such behaviours are at the heart of opening behaviours. Leaders with opening behaviours are able to intellectually stimulate their followers (Tung, 2016; Chen et al., 2016; Rosing et al., 2011) to come up and experiment with new ideas. Accordingly, employees will feel more empowered in their job (Tung, 2016; Chen et al., 2016; Pradhan et al., 2016). This leads to the next hypothesis:

H4: Opening leadership behaviours are positively related to psychological empowerment.

Furthermore, opening behaviours are argued to decrease the fear to make mistakes among employees. (Rosing et al., 2011). When employees are less scared to make mistakes in their job, they will take more risks and show more explorative behaviours (Liu et al., 2019; Afsar et al., 2014; Laschinger et al., 2001) which in turn lead to increased IWBs. An enhancement in empowerment activates three internal principles in employees. First, they experience the

feeling that they possess a degree of autonomy, which allows them to take their own decisions on the way they face their problems (Erturk, 2012). Furthermore, employees feel less constrained by rule-bounding when they feel more empowered in their job (Rehman et al., 2019). Additionally, employees experience an increased feeling of self-efficacy in their work, making them feel like they are able to successfully complete their tasks (Erturk, 2012; Rehman et al., 2019). In turn, these three psychological processes will increase the output of IWB's among employees (Spreitzer, 1995; Erturk, 2012; Amabile & Grykiewicz, 1989).

Based on this reasoning, we form the following hypothesis:

H5: Psychological empowerment in employees is positively related to innovative work behaviours.

Taking the last two hypotheses into account, the sixth hypothesis will state the mediating effect of PE. As indicated, as a result of inspirational motivation of employees and intellectually stimulating employees, opening leadership behaviours are expected to increase PE among employees (Tung, 2016; Chen et al., 2016; Rosing et al., 2011). Additionally, employees feel less scared to make mistakes when their leader applies opening behaviours, further enhancing PE (Liu et al., 2019; Afsar et al., 2014; Laschinger et al., 2001). With this rise in PE, employees feel they possess a degree of autonomy, feel less constrained by rule-bounding and feel self-efficacy when enacting their work (Erturk, 2012; Rehman et al., 2019). The combination of these internal processes in employees will increase their output of IWB's (Amabile & Grykiewicz, 1989; Spreitzer, 1995; Erturk, 2012;). This leads to the next hypothesis of this research:

H6: Psychological empowerment mediates the relationship between opening leader behaviour and innovative work behaviours.

Goal Clarity and its Mediating role

Goal clarity is the clarity that an employee perceives about their goals and responsibilities (Sawyer, 1992). According to Hu and Liden (2011) goal clarity enhances the understanding of individuals' task goals and paths and it also highlights the individuals' connections to co-workers, teams and the organization. This mutual understanding among employees facilitates the disclosure of a shared vision, shared goals and responsibilities of each individual (Sawyer, 1992) and facilitates a more effective communication.

Considering the literature on closing leadership behaviours, this research expects closing leadership behaviours to be positively related to goal clarity. This assumption is based on research which argues that leaders with closing behaviours facilitate both a clear vision towards goals that need to be attained, and on the other hand, motivate employees to become engaged to attainment of these goals. This clear vision and motivation are expected to decrease ambiguity surrounding goals and roles, in turn increasing goal clarity (Ahlers, 2017). Additionally, closing leadership behaviours are argued to be positively related to goal clarity, because these behaviours facilitate a focused group-culture towards the goal that need prioritizing at the current time. In turn, this clear focus within a group of employees increases the goal clarity among those employees, because they are all aware of their respective goals (Zheng et al., 2017). Furthermore, Zheng and colleagues (2017) analysed the possible effects of AL on a team-level. They proved that AL partially consist of closing leadership behaviours, because AL helps to maintain a focused and consistent in-team culture which reduces ambiguity within teams. This decrease in ambiguity among teams enhances team-performance by clarifying every individual's role and goals. Luo, Zheng, Ji & Liang (2018)

added to these results by arguing that AL - besides only clarifying goals and roles of teams - also stimulates teams to be explorative in their problem solving. This combination between maintaining a clear consistent culture and fostering an adaptive culture within teams is proven to enhance performance by teams (Luo et al., 2018). Eventhough these researches have a focus on teams, their results do indicate that closing leadership is related to goal clarity. Thus, closing leadership behaviours are expected to enhance goal clarity among employees. In line with this argumentation, the following hypothesis of this research is:

H7: Closing leadership behaviours are positively related to goal clarity.

In 1990, Locke & Latham introduced the goal-setting theory, which argues that setting clear, specific and challenging goals enhanced both job performance and innovative behaviour of employees. According to Locke & Latham (1990), goal clarity has a major effect on reducing ambiguity among employees. This decrease in ambiguity allows employees to think of innovative ways to solve their problems (Ekvall, 1996). Furthermore, goal clarity enhances idea novelty of employees which is defined as the perception of the employees that unusual and new solutions are often brought up during discussions in their team (Stetler & Magnusson, 2015). Once employees perceive the sharing of new ideas as a regular behaviour, they will start to show more explorative behaviours. In turn, employees are more likely to start showing IWB themselves. Since then, multiple researchers have examined this process with all of them confirming this relationship (Lui, Lai & Moran, 2019; Imber, 2017; Audenaert, Decramer, George, Verschuere & Van Waeyenberg, 2019). Furthermore, goal clarity is argued to increase exploitation of existing ideas (Gupta, Smith & Shalley, 2006; Cyert & March, 1992). When employees perceive their personal goals and the organizational' goals as clear, they will start to further develop and elaborate on existing ideas and solutions

within a company (Gupta et al., 2006). In sum, goal clarity is expected to enhance both exploration and exploitation among employees. Balancing explorative and exploitative behaviours is expected to result in increasing IWB. This leads to the next hypothesis of this research:

H8: Goal clarity is positively related to innovative work behaviours.

Considering the two previous hypotheses, this research expects a mediating effect of goal clarity on the relationship between closing leader behaviours and innovative work behaviours. This expectation is based on previous research (Ahlers, 2017; Zheng et al., 2017), which examined leaders who tend to apply closing behaviours. These closing leadership behaviours are aimed at enhancing exploitation in employees, which in turn creates clear vision towards goals that need to be attained; motivates employees to become engaged to attain these goals and creates a goal-focused culture within an organization (Ahlers, 2017; Zheng et al., 2017). In consequence of these behaviours, goal clarity will be enhanced (Zheng et al., 2017). This increase in goal clarity is then expected to increase IWB, by improving the goal-image, problem vision and perception of idea novelty of employees (Locke & Latham, 1990; Ekvall, 1996; Stetler & Magnusson, 2015; Audenaert et al., 2019; Lui et al., 2019; Imber, 2017). A clearer image of the goals that employees need to attain and better vision towards the possible problems they might face, allows employees to be more innovative in the way they try to complete their goals (Locke & Latham, 1990; Ekvall, 1996;). Therefore, goal clarity is expected to mediate the relationship between closing leader behaviours and innovative work behaviours. In line with this argumentation, the next hypothesis is:

H9: Goal clarity mediates the relationship between closing behaviours and innovative work behaviours.

Finally, this research expects that the interaction between closing leadership and opening leadership (AL) is partially mediated by both psychological empowerment and goal clarity. As stated before, ambidextrous leadership consists of combining opening and closing leadership behaviours (Zacher et al., 2015). Multiple studies have shown that the most important part for AL to be effective in enhancing IWB is the ability for leaders to combine closing and opening behaviours and also be flexible in the use of both opposing behaviours. With this flexibility belongs a balance between opposing behaviours, in which the right amount of both behaviours needs to be used for ambidextrous leadership to be effective (Kaiser & Overfield, 2010; Gerlach et al., 2020). Therefore, this research will examine the effectiveness of an interaction between closing and opening leadership and to what extent both mediators mediate the relationship between AL and IWBs. Considering the aforementioned relationships, the final hypothesis of this research states:

H10: Psychological empowerment and goal clarity are parallel mediators, partially mediating the relationship between AL and IWB.

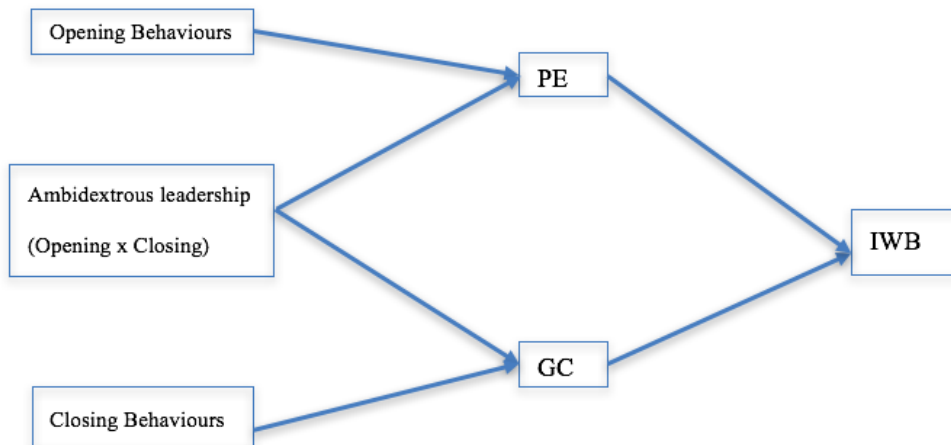


Figure 1. A model for the indirect effect of opening and closing behaviours on innovative work behaviours, mediated by psychological empowerment and goal clarity

Methods

Participants & procedure

Participants in this research are Dutch employees who work with a supervisor, either part-time or full-time. Participants were mainly gathered through the internship organisations of two researchers working on ambidextrous leadership. Additionally, the social networks of both researchers were used to gather even more participants. The participants were either approached via e-mail or a personal message, supplemented with a leaflet giving information on the research. Initially, we tried to collect data from dyads consisting of an employee and his/her supervisor. The supervisors would have been asked to rate the innovative work behaviours of their followers, whereas followers will rate all the variables. Followers were also asked to rate

their own IWB, in case an insufficient amount of answers would be obtained from the leaders. As expected, due to a lack of supervisors willing to participate in the research, this research consists of data only from employees.

An online questionnaire formed via the programme Qualtrics (Qualtrics, Provo, UT) was used to collect data. To ensure that each participant understood the goal of the research and was fully informed, there was an informed consent at the beginning of the questionnaire. In this consent it was also mentioned that the data of the participant would be used anonymously.

In total 198 respondents completed the questionnaire of this research. 66% of the respondents were female, while 34% were male. The sample had a mean age of 38,51 (SD=13,49). The mean work experience of the sample was 18,04 years (SD=14,56). The mean tenure of employees with their supervisor was 3,86 years (SD=0,34) and the average tenure with the employees' current organization was 10,70 years (SD=0,87).

Measures

After the respondents accepted the informed consent form, the demographic information was requested. The demographic information consisted of age, gender, working experience in years, tenure with current leader in years and tenure with current organisation in years. After this, the constructs were measured. Existing scales were used for each construct. The original language of all scales was English. However, since this research focuses on Dutch participants, the scales had to be translated to Dutch. Afterwards, the translated scales have been back-translated to English by an external fluent Dutch- and English speaker, in order to ensure the precision of the translation. All items were scored on a 7-point Likert scale, ranging from 1 (Strongly disagree; Never) to 7 (Strongly agree; Always).

The questionnaire which was used for opening- and closing leadership in the current study is developed by researchers from the University of Leuven. Rosing et al. (2011) defined 7 examples of behaviours for each leadership style in their paper. These behaviours were not

introduced as ambidextrous leadership. Nevertheless, many studies used these items to measure ambidextrous leadership (Zacher & Rosing, 2015; Zacher et al., 2016; Alghamdi, 2018). To develop a validated scale for ambidextrous leadership, Ceri-Booms, Stouten & Wendt (2020) conducted several interviews with a diverse sample of 13 high level managers. These managers were actively leading innovative processes at the time of the interviews. Based on these interviews and the relevant literature, a questionnaire of 32 items was developed. 17 items are focused on opening behaviours, while 15 items focus on measuring closing behaviours. To determine whether the content of the questionnaire is valid and to ensure that the items are actually capturing the full concept of “ambidextrous leadership”, expert judges were invited to judge the content validity of the items. These expert judges consisted of practitioners, both at the managerial and non-managerial level, and academics consisting of PhD students and PhDs. In total 98 responses for opening behaviour and 92 responses for closing behaviours were obtained. 11 items for opening and 10 items for closing leadership remained after the initial analysis. Some items were modified based on the comments received from the respondents. In order to evaluate the content validity of the items, PhD's working in the area of ambidextrous leadership, ambidexterity and innovation management were given the definition of opening and closing behaviours. Afterwards they were asked to rate to which extent each item captures this definition, based on a 6-point scale ranging between “very inconsistent” to “very consistent. All 11 items for opening leadership and 10 items for closing leadership remained. Furthermore, an additional item was placed for opening behaviours. In conclusion, 12 opening ($\alpha=.90$) and 10 closing items ($\alpha=.79$) maintained in the scale, which will be used in the current study.

To create a score for AL ($\alpha=.88$), a formula defined in the article by Kaiser & Overfield (2010) was used. In this article, the researchers explain a formula to measure the flexibility component of leadership. As mentioned before, this flexible component is very

important to AL, since effective leaders are able to apply the different leadership styles in line with the situational requirements of creativity and implementation. This flexibility allows AL to be effective and creates a significant enhancement in organizational performance and organization adaptability. Therefore, to create a score for AL, the following formula was used to compute AL as a variable:

$AL = ((7-1) - (ABS(Closing-Opening))) * ((Closing+Opening)/2)$. To elaborate on this formula, Kaiser & Overfield (2010) explain the interpretation of different scores in their study. They argue that managers who score high are high rated on AL, but also relatively equal on opposing behaviours. Leaders who score low are rated high on one behaviour, but are rated low on the opposing behaviour. Therefore, their opposing behaviours are not balanced. This balance is important in the effectiveness of AL.

For IWB, De Jong & Den Hartog (2010) created a ten item scale ($\alpha = .93$) with items such as “How often does this employee pay attention to issues that are not part of his daily work?”. Regarding PE, a twelve items scale ($\alpha = .85$) by Spreitzer (1995) was used. An example of an item in this scale is: “I am confident about my ability to do my job”. Finally, for goal clarity, the 5-item scale developed by Sawyer (1992) was used ($\alpha = .88$). An example item is “My duties and responsibilities are clear”.

Control variables

Some of the demographic information in the questionnaire has been used as control variables. Firstly, it has been proven that age influences innovative work behaviours. It has been argued that younger employees are more likely to show innovative work behaviours, since they are generally more open to experimentation, whereas the experience of older employees often makes them biased towards existing solutions (Ng & Feldman, 2013). Therefore, age is used as a control variable in this research. Furthermore, tenure of the supervisor-employee relationship has been used as control variables, since this is argued to influence the effectiveness of

leadership. Multiple studies have indicated that when the tenure of this relationship is shorter, employees are more likely to be effective by leadership. Whenever an employee has more experience with their current leader, their behaviours are less likely to change according to the type of leadership. Therefore, tenure of the supervisor-employee relationship is used as a control variable in this study. (Ames, 2009; Hughes et al., 2018).

Analysis

Before the actual data analysis, a Power analysis was run using the programme G*Power 3.1, in order to determine the amount of respondents needed for a medium effect size.

With this analysis, the chosen error probability was .05 and the chosen power was 0.8, analysing how many respondents were needed for a medium effect size between 0.7-0.8 β .

The number of predictors was 3. The power analysis showed that 175 respondents were needed for a medium effect size. Therefore, the current research should have a sufficient amount of respondents.

After the data was collected, it was cleaned and prepared for the actual analysis.

Incomplete data and participants that did not agree with the informed consent were removed.

For hypothesis 1, 2, 3, 4, 5, 7 and 8, a hierarchical regression analysis was run. For hypothesis 6, 9 a mediation analysis was run. Lastly, for hypothesis 10, a parallel mediation analysis was run.

Results

Before performing the analysis to test the hypotheses, homoscedasticity and multicollinearity assumptions were checked. To check for outliers, Mahalanobis, Cooks and Leverage values were checked. Respondents were only removed once they scored above the limit on all three values. 8 outliers were removed in total. Furthermore, all assumptions were met. A correlational table and graph of the distribution of respondents are both added in the appendices.

Hypothesis 1

To test the first hypothesis, which states that there is a positive relationship between opening behaviours and IWBs, a hierarchical regression analysis was conducted. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, there was a positive relationship between opening leadership and innovative work behaviours ($F(1, 190) = 6.22, p < .05, R^2 = 0.61$) This result does support hypothesis 1.

Hypothesis 2

To test the second hypothesis, which argues that there is a positive relationship between closing behaviours and IWBs, a hierarchical regression analysis was conducted. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, there was a positive relationship between closing leadership and innovative work behaviours ($F(1, 190) = 9.99, p < .05, R^2 = 0.01$). This result does support hypothesis 2.

Hypothesis 3

To test the third hypothesis, which states that there is a positive relationship between AL and IWBs, a hierarchical regression analysis was conducted. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, there was a positive relationship between ambidextrous leadership and innovative work behaviours ($F(1, 190) = 8.41, p < .05, R^2 = 0.09$). This result does support hypothesis 3.

Hypothesis 4

To test the fourth hypothesis, which stated that opening leadership behaviours are positively related to psychological empowerment, a hierarchical regression analysis was conducted.

When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, a positive relationship was found between opening leadership and psychological empowerment ($F(1, 190) = 32.81, p < .05, R^2 = 0.22$). This result does support hypothesis 4.

Hypothesis 5

To test the fifth hypothesis, which argued for psychological empowerment to be related to innovative work behaviours, a hierarchical regression analysis was conducted. Once the demographic variables of age, tenure of employee-supervisor relationship were controlled for, there was a positive relationship between psychological empowerment and innovative work behaviours ($F(1, 190) = 47.75, p < .05, R^2 = 0.24$). This result does support hypothesis 5.

Hypothesis 6

To test the sixth hypothesis, which argued for a mediation effect of psychological empowerment on the relationship between opening leadership and innovative work behaviours, a mediation analysis was conducted via PROCESS MACRO. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, psychological empowerment significantly mediates the relationship between opening leadership and innovative work behaviours (Indirect = .20, SE = .06, 95% CI [0.07, 0.32]). This result does support hypothesis 6.

Hypothesis 7

In order to test the seventh hypothesis, which stated that closing leadership is positively related to goal clarity, a hierarchical regression analysis was conducted. Once the demographic variables of age, tenure of employee-supervisor relationship were controlled for,

there was a positive relationship between closing leadership and goal clarity ($F(1, 190) = 26.35, p < .05, R^2 = 0.24$). This result supports hypothesis 7.

Hypothesis 8

To test the eighth hypothesis, which argued for a positive relationship between goal clarity and innovative work behaviours, a hierarchical regression analysis was conducted. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, there was no positive relationship between goal clarity and innovative work behaviours ($F(1, 190) = 2.98, p = .08, R^2 = 0.06$). This result does not support hypothesis 8.

Hypothesis 9

To test the ninth hypothesis, which states that goal clarity mediates the relationship between closing leadership and innovative work behaviours, a mediation analysis was conducted via PROCESS MACRO. When the demographic variables of age, tenure of employee-supervisor relationship were controlled for, goal clarity did not significantly mediate the relationship between closing leadership and innovative work behaviours (Indirect = .03, SE = .05, 95% CI [-0.07, 0.08]). The direct effect of closing leadership on innovative work behaviours was significant (Direct = .27, SE = 0.10, $P < .05$). Furthermore, the total effect of closing leadership on innovative work behaviours was also significant (Total = .30, SE = .09, $P < .005$). This result does not support hypothesis 9.

Hypothesis 10

To test the tenth hypothesis, which argues that goal clarity and psychological empowerment mediate the relationship between ambidextrous leadership and innovative work behaviours, a parallel mediation analysis was conducted via PROCESS MACRO. When the demographic

variables of age, tenure of employee-supervisor relationship, as well as for the other mediator during a parallel mediation are controlled for there is no parallel mediation of psychological empowerment and goal clarity on the relationship between ambidextrous leadership and innovative work behaviours (Indirect = .014, SE = .01, 95% CI [- 0.004, 0.356]). The separate mediation effect of psychological empowerment on the relationship between ambidextrous leadership and innovative work behaviours (PE = 0.0169, SE = .008, 95% CI [0.002, 0.035]) was significant, while the separate mediation effect of goal clarity on the relationship between ambidextrous leadership and innovative work behaviours (GC = -0.002, SE = 0.006, 95% CI [-0.015, 0.01]) was not significant. This result does not support hypothesis 10.

Discussion

The main purpose of this research was to improve the understanding of the relationship between ambidextrous leadership and innovative work behaviours. This research also examined how psychological empowerment and goal clarity are related to this relationship. Firstly, we examined whether opening-, closing- and ambidextrous leadership are directly related to innovative work behaviours. The results for these direct relationships were both significant. Additionally, the relationship between ambidextrous leadership and innovative work behaviours was significant, supporting the importance of the interaction and flexibility between different types of leadership (opening and closing) and underlining the relevance of ambidextrous leadership in research on innovation stated by earlier researchers (Gerlach et al., 2020; Rosing, 2011 & 2018; Zacher et al., 2016).

After these initial analyses, the mediation role of psychological empowerment between the opening leadership and innovative work behaviours was examined. The results were significant. Additionally, the mediating role of goal clarity on the relationship between closing leadership and innovative work behaviour was examined. The relationship between

closing leadership and goal clarity was significant, however both the relationship between goal clarity and innovative work behaviours; and the mediation of goal clarity on the relationship between closing leadership and innovative work behaviours were not significant. These last results were not in line with previous research, which indicated that there could be a mediating effect of goal clarity (Locke & Latham, 1990; Ekvall, 1996; Stetler & Magnusson, 2015; Audenaert et al., 2019; Lui et al., 2019; Imber, 2017). Lastly, it was examined whether the relationship between ambidextrous leadership and innovative work behaviours was mediated by psychological empowerment and goal clarity. The result for this parallel mediation was not significant, so psychological empowerment and goal clarity do not simultaneously mediate this relationship. However, when considering both mediating variables separately, psychological empowerment was found to significantly mediate the relationship between ambidextrous leadership and innovative work behaviours. The effect sizes for the relationship between opening leadership and innovative work behaviours mediated by psychological empowerment were medium sized, and the relationship between ambidextrous leadership and innovative work behaviours mediated by psychological empowerment was weak (Field, 2013).

Theoretical contribution

This research adds to an already existing body of theory on the leadership-innovation relationship, set out by different researchers such as Hughes and colleagues (2018); Rosing and colleagues (2011). This research adds to existing research in multiple ways. First, it confirms the importance of the ambidextrous leadership model for innovation. Both opening and closing leadership behaviours have a positive relationship with innovative work behaviours. As indicated by previous research, these specific leadership behaviours cater to creativity and implementation specifically (Gerlach et al., 2020, Rosing et al., 2011). Especially the positive relationship between closing leadership and innovative work

behaviours is remarkable. The amount of research indicating this positive relationship is very small, especially in comparison to the amount of research on the relationship between opening leadership and innovative work behaviours. Closing leadership is often argued to decrease innovation, since it focuses on reaching goals and completing projects. However, the results of this study indicate that closing leadership is actually of significant importance for implementation, in turn increasing innovation.

Additionally, the interaction of opening- and closing leadership is an advantage over traditional leadership styles. For example, when comparing ambidextrous leadership and transformational leadership, both leadership styles enhance creativity by intellectual stimulation (Bass, 1985; Tung, 2016; Chen et al., 2016; Rosing et al., 2011). However, transformational leadership aims at increasing employees' general motivation to go beyond what is expected, whereas ambidextrous leadership provides the employee with concrete advice concerning the task performance associated with the creativity requirements (Rosing et al., 2011; Gerlach et al., 2020). Consequently, ambidextrous leadership adds concrete practical advice for employees, which enhances the effectiveness of this leadership style in comparison to transformational leadership. Furthermore, the ambidextrous leadership model takes the situational requirements of implementation and creativity into account and includes the flexibility needed for leaders to adjust their behaviours to be effective in different situations (Rosing et al., 2011; Kaiser et al., 2010; Gerlach et al., 2020).

There has been other research in recent history which examined this relationship between ambidextrous leadership and innovation. Kung, Uen and Lin (2020) recently confirmed a positive relationship between ambidextrous leadership and innovation. Their study was conducted on a team-level and they argued for a mediating role of organization climate on this positive relationship between ambidextrous leadership and innovation. Furthermore, Gerlach and colleagues (2020) conducted longitudinal research on this

relationship. Their research added to the body of theory by showing an increased effect of ambidextrous leadership over time. This effect over time was significant, in comparison to different leadership styles like transformational leadership or transactional leadership which did not increase innovative work behaviours over time. Lastly, Wang and colleagues (2020) recently argued for ambidextrous leadership to be a 'double edged sword'. Their research indicated a positive relationship between ambidextrous leadership and innovation, but also argued for ambidextrous leadership to increase job stress and role ambiguity. Thus, their research introduces possible negative consequences of ambidextrous leadership on employees. These studies show an increase in attention for ambidextrous leadership in this field of work.

Eventhough the findings of this current study are not totally new to this field of work, we still thoroughly believe that this study advances the field. The way ambidextrous leadership has been calculated in this current study is very different from previous studies on this relationship. Previous research has mainly used a sum of scores on questionnaires for closing and opening leadership to calculate ambidextrous leadership. However, our current study used a formula to create an interaction score between opening and closing leadership, including the very important aspect of flexibility to our measure of ambidextrous leadership. Eventhough this aspect of flexibility is of enormous importance for the effectiveness of ambidextrous leadership, previous studies have not been able to include it in their measures. Consequently, we believe that this current study has a more complete measure of ambidextrous leadership, thus increasing the validity of the results of this study and significantly advancing the knowledge in this field of work.

Furthermore, contrary to expectations, this study did not find a significant relationship between goal clarity and innovative work behaviours. Additionally, there was no mediation effect of goal clarity. This expected relationship was based on multiple research (Locke &

Latham, 1990; Ekvall, 1996; Gupta et al., 2006; Cyert & March, 1992). These studies argued that goal clarity would lead to a decrease in role ambiguity among employees. In turn, this would enhance both exploration and exploitation of employees, increasing innovative work behaviours. Eventhough this does presume a possible relationship; their results need to be interpreted carefully. As stated by Gupta and colleagues (2006), this argumentation is based on a small number of studies and weak effect sizes. This could be an explanation for the unexpected results in the current research. A positive relationship between closing leadership and goal clarity; and between ambidextrous leadership and goal clarity were found in this current research. The combination of these results could indicate a different effect of goal clarity. Based on this, goal clarity might be a mediating variable between ambidextrous leadership and a different outcome, like organizational learning or employee strain. Therefore, this research also contributes by tackling older argumentation and indicating different effects of goal clarity on the leadership-innovation framework.

Thirdly, the results of this research corroborate the findings of a great deal of previous research on psychological empowerment. This study supports evidence of previous observations (Tung, 2016; Chen et al., 2016; Rosing et al., 2011; Liu et al., 2019; Afsar et al., 2014; Laschinger et al., 2001), which argued that opening leadership enhances psychological empowerment by increasing self-efficacy, perceived autonomy and less containment due to rule-bounding. Consequently, these psychological processes would make employees less scared to make mistakes; more open to trying new solutions and finding new ways to work. In turn, this decrease in fear for mistakes and openness to new solutions is argued to enhance innovative work behaviours of employees. The current results underline this mediating effect of psychological empowerment. Furthermore, it was argued by prior research that ambidextrous leadership would also enhance innovative work behaviours by a mediating effect of psychological empowerment (Rosing et al., 2011; Zacher et al., 2016; Tuan et al.,

2015; Gerlach et al., 2020). Eventhough the total effect of the parallel mediation model of goal clarity and psychological empowerment was not significant; the separate mediation effect of psychological empowerment did confirm earlier observations. Thus, this indicates that ambidextrous leadership also enhances psychological empowerment, in turn increasing innovation among employees. This positive effect of ambidextrous leadership on psychological empowerment could be down to the flexibility of ambidextrous leadership. When an employee is aware of the ability of their supervisor to be flexible in their behaviour and adapt to the requirements of the situation, then this could motivate the employee. When this employee feels more motivation, their self-efficacy is likely to increase as well. In turn, the employee will feel more empowered and confident in their work. As argued before, this increase in empowerment is likely to increase innovative work behaviours. In sum, the ability to show flexibility and adaptability by supervisors with an ambidextrous leadership style is argued to increase both psychological empowerment and innovative work behaviours. Concluding, we believe that the results of this current study significantly increase the knowledge on the leadership-innovation relationship, in turn advancing the field with this study.

Practical application

The current study has important implications for developing training aimed at leader development, because it emphasizes some specific types of leader behaviours in the innovation process. The results of this research underline the positive relationship between closing, opening and ambidextrous leadership and innovation. Thus, as previous research stated (Rosing et al., 2011; Tuan et al., 2015), organizational leaders working in innovation processes should apply both closing and opening leadership to address creativity and implementation demands throughout this process. It is of importance to mention that this innovation process is not linear. As Rosing and colleagues (2011) argue in their study, the

requirements of generating and implementing ideas fluctuate throughout the innovation process in an ever-changing way. This makes the innovation process full of paradoxes and tensions, thus increasing the complexity of this process. Closing leadership includes providing goals and deadlines, which need to be monitored very closely. Furthermore, innovation projects need to be finished and the results of these projects need to be interpreted. Hereby closing leadership provides employees with an environment in which they can enact the implementation requirements of the innovation process (Tuan et al., 2015). On the other hand, opening leadership includes giving employees the opportunity to develop new ideas and challenge the status quo. Additionally, opening leadership aims at framing errors as a chance to learn and receive new information, instead of mere failure (Rosing et al., 2011). Consequently, opening leadership provides employees with an environment in which they are able to act on creativity requirements of the innovation process (Rosing et al., 2011). Another important aspect of ambidextrous leadership is flexibility. As previous studies have argued (Kaiser et al., 2010; Tuan et al., 2015), flexibility between these behaviours is crucial in efficient use of these leadership styles. Also, not only the flexibility, but also the balance between opposing leadership behaviours is of importance. The way this current study has measured scores on ambidextrous leadership indicates that there is a balance between opposing behaviours when high scores are obtained. Thus, the results of the current study underline both the importance of flexibility, and the importance of a balance between opposing behaviours. To apply these behaviours, future innovation training for leaders should focus on applying both leadership styles and recognizing what is expected of them and their group in each situation (Kaiser et al., 2010). By taking these three important aspects into account, leaders will be able to effectively support their employees to achieve high innovative work behaviours.

Limitations

In spite of the contributions of the present study, there are some limitations to that need to be considered. Firstly, the data on innovative work behaviour was only based on self-reports. As mentioned before, we tried to collect data from leader-employee dyads. However, because of an insufficient amount of responses on the leader questionnaire, only self-report data was used to assess innovative work behaviours. Self-reports are often subject to several biases, like the common method bias (Podsakoff et al., 2003), in which variations in responses are not caused by predispositions of respondents, but by the instrument used. However, there have also been opposing arguments, which state that self-reports of innovative work behaviours might actually be less biased than reports of supervisors, since supervisors often have certain preconceptions of employees. Therefore, these self-reports might be a limitation of the current study, but this cannot be confirmed yet.

In addition, multiple studies have indicated that for leadership to be effective on innovative performance, there need to be regular daily interactions between supervisor and subordinate (Amabile et al., 2000; Hughes et al., 2018). In the current period in which this study is conducted, the regular interactions between leader and employee are not natural. Due to the coronavirus many organizations are operating from home. This physical distance between leader and employee often includes a decrease in interactions. Especially when the tenure between supervisor and employee is short, frequent interactions are needed for an employee to determine the style of leadership of their supervisor (Wu et al., 2010). Therefore, some of the scores of employees on their supervisors' leadership style are less accurate than in the usual situation. Furthermore, it is uncertain whether the current online meetings, which replace face to face interactions, have the same effect on employees. Miller and O'Brien (2020) have recently examined this difference on the teacher-student relationship, and they argued that online meetings might be less effective. This might be an indication that the current situation surrounding the coronavirus has limited the validity of the current results

somewhat. Notwithstanding the contributions of the current study, these limitations need to be considered when interpreting this research.

Future research

Despite the promising results of this study, some questions remain. Firstly, future research should be undertaken to determine the exact effect of goal clarity on innovative work behaviours. In contrast to earlier findings (Ahlers, 2017; Zheng et al., 2017), no mediation effect of goal clarity on the both the relationship between closing leadership and innovative work behaviours; and the relationship between ambidextrous leadership and innovative work behaviours were found. On the other hand, the results of this study do underline a positive relationship between closing leadership and goal clarity. This might be an indication that goal clarity has a different effect in the leadership-innovation framework. Carbonell and Escudero (2009) argued that for goal clarity to mediate a relationship between leadership and innovation, a job needs to be medium in technical novelty. Consequently, technical novelty of a job would moderate this mediating effect of goal clarity. Lastly, aforementioned research by Wang, Eva, Newman & Zhou (2020) argued for ambidextrous leadership to be a ‘double edged sword’ regarding goal clarity. Their study argued that ambidextrous leadership would increase both goal and role ambiguity. This indicates that ambidextrous leadership might have an opposite effect regarding goal clarity. However, the insignificant result of the current study could also be an indication of a difference between individual-level and team-level effects of goal clarity. The majority of the literature on which this study is based was conducted on a team-level, while the current study is conducted on an individual-level. Future research could replicate the current study on a team-level and examine whether the results of goal clarity might change. In sum, the studies indicate that goal clarity might have a different effect than examined in the current study. Therefore, to gain more knowledge on the concrete effects of

goal clarity, future research on the effect of goal clarity in the leadership-innovation relationship is required.

Furthermore, future research on the topic of leadership and innovation should use dyads to gather data. As mentioned before, this was attempted in the current research. However, when applied in future research, this data would decrease the possibilities for biases in the data, thus increasing the validity of the study. Additionally, to decrease the limitations that plague the current study, future research on leadership should be conducted once the regular interactions between leaders and employees are restored.

Conclusion

In summary, the aim of this study was to develop a better understanding of the influence of ambidextrous leadership on innovative work behaviours. To expand on the already existing knowledge of this relationship, the role of both psychological empowerment and goal clarity were examined. The relevance of ambidextrous leadership regarding innovative work behaviour is clearly supported by the current findings. By flexibly adjusting between opposing behaviours, leaders are increasingly able to enhance innovative output of employees, in comparison to traditional leadership styles. Additionally, the mediating role of psychological empowerment was confirmed. When leaders are able to increase feelings of competence, meaning, impact and self-determination in employees, they will increase psychological empowerment in employees. In turn, this study proves that employees are more likely to produce innovative work behaviours. Thus, this research contributes to the theoretical clarification of the leadership-innovation relationship.

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Appendix A: The questionnaire

Demographics

Wat is uw gender?

- Man

- Vrouw

- Anders

Hoe oud bent u?

Hoeveel jaar werkt u reeds met uw huidige leidinggevende?

Hoeveel jaar werkt u reeds voor uw huidige werkgever?

Hoeveel jaar werk u reeds?

Innovative work behaviours

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. Genereren 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?

Psychological empowerment

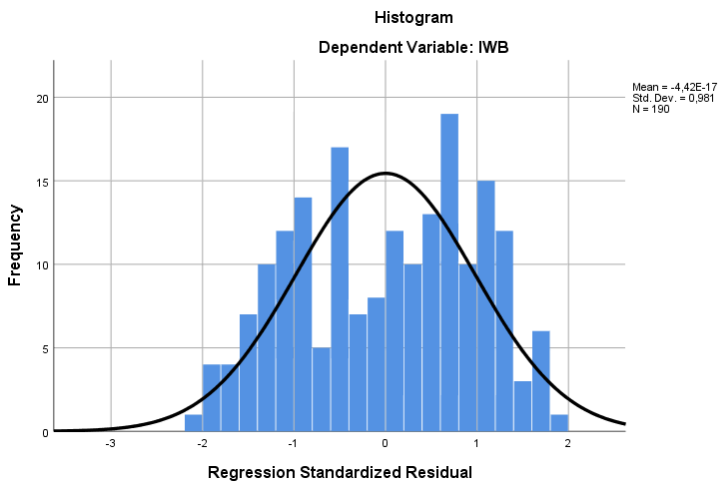
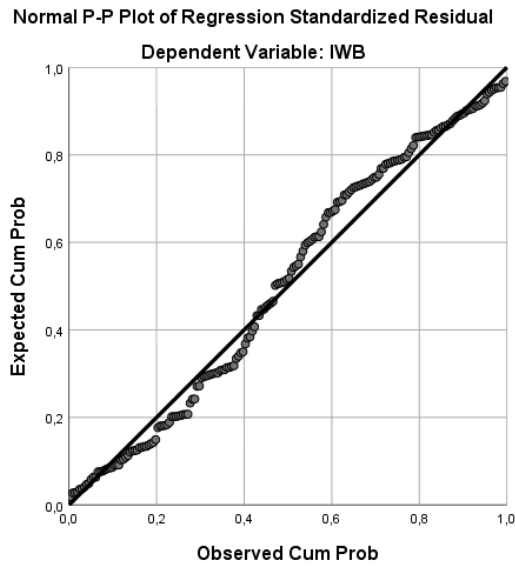
1. Het werk wat ik doe is heel belangrijk voor mij.
2. Mijn werkzaamheden zijn voor mij persoonlijk belangrijk.
3. Ik heb vertrouwen dat ik de vaardigheden heb om mijn werk te doen.
4. Ik ben zelfverzekerd over mijn capaciteiten om mijn werk te doen.
5. Ik heb de benodigde vaardigheden voor mijn werk onder de knie.
6. Ik heb significante autonomie om te bepalen hoe ik mijn werk doe.
7. Ik kan zelf beslissen hoe ik mijn werk uitvoer.
8. Ik heb aanzienlijke kans op onafhankelijkheid en vrijheid in hoe ik mijn werk uitvoer.
9. Mijn invloed op wat er gebeurt in mijn afdeling is groot.
10. Ik heb grote controle over wat er gebeurt op mijn afdeling.
11. Ik heb significante invloed over wat er op mijn afdeling gebeurt

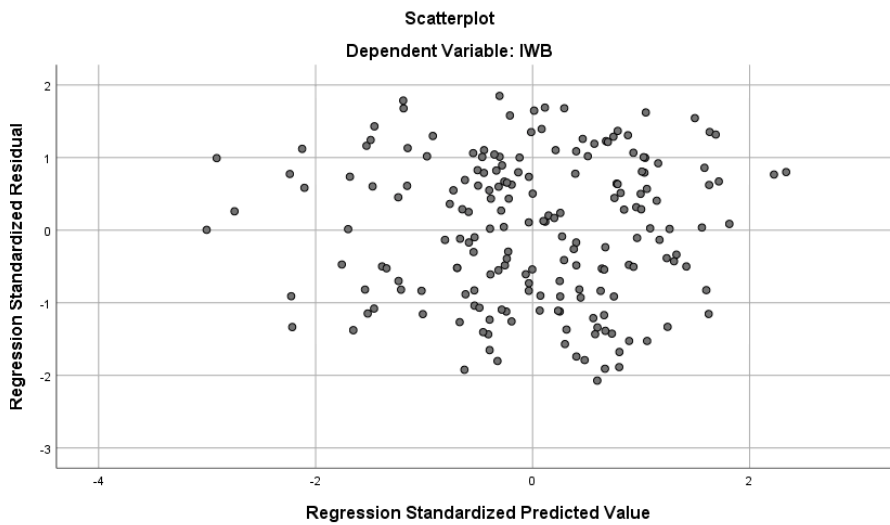
Goal clarity

1. Mijn plichten en verantwoordelijkheden zijn duidelijk.
2. De doelstellingen in mijn werk zijn duidelijk.
3. Het is duidelijk hoe mijn werk betrekking heeft op de doelstellingen van mijn afdeling.
4. De verwachte resultaten van mijn werk zijn duidelijk.

5. Het is duidelijk welke aspecten van mijn werk zullen leiden tot positieve evaluaties.

Appendix B: Graphs for the assumptions





Appendix C: Correlational table

Correlations

		IWB	Hoe oud bent u?	Hoeveel jaar werkt u reeds met uw leidinggevende?	OLB	CLB	PE	GC	AL
Pearson Correlation	IWB	1,000	,114	,223	,163	,247	,497	,150	,225
	Hoe oud bent u?	,114	1,000	,282	,041	,064	,272	,114	,062
	Hoeveel jaar werkt u reeds met uw leidinggevende?	,223	,282	1,000	,145	,120	,219	,358	,096
	OLB	,163	,041	,145	1,000	,377	,268	,381	,530
	CLB	,247	,064	,120	,377	1,000	,159	,370	,812
	PE	,497	,272	,219	,268	,159	1,000	,251	,239
	GC	,150	,114	,358	,381	,370	,251	1,000	,353
	AL	,225	,062	,096	,530	,812	,239	,353	1,000