



Utrecht University

**Ambidextrous leadership and innovative work behaviors: the role of
creative process engagement and creative role identity**

Achilleas Mystridis

6841767

Supervisor – Dr. Meltem Ceri-Booms

Second Supervisor – Dr. Ruth van Veelen

Social, Health and Organizational Psychology

Wednesday 19 August 2020

Abstract

In an increasingly fast-paced and competitive environment, leaders need to inspire their followers in ways that enhance their creativity and innovative thinking. Ambidextrous leadership has been repetitively suggested to have a significant impact on followers' innovative ideas and creativity. Drawing on the social learning and role identity theories, we examined a moderated mediation model that tested the relationship between ambidextrous leadership and innovative work behaviors, mediated by creative process engagement. Creative role identity was considered as the moderator of the relationship between ambidextrous leadership and creative process engagement. The participants consisted of 98 employees (61.2% females, $M_{age} = 29.5$ years) that were asked to rate their leader's practices and assess their own creative and innovative attitudes. Although the results of the moderated mediation analysis showed no significant link between ambidextrous leadership and innovative work behaviors, we found significant positive relationships between ambidextrous leadership and creative process engagement, creative process engagement and innovative work behaviors, and creative role identity and creative process engagement. The findings and possible explanations are discussed further in this paper.

Keywords

Ambidextrous leadership (AL) - Creative process engagement – Creative role identity – Innovative work behaviors

Table of Contents

INTRODUCTION3

LITERATURE REVIEW5

INNOVATIVE WORK BEHAVIORS5

AMBIDEXTROUS LEADERSHIP5

CREATIVE PROCESS ENGAGEMENT7

CREATIVE ROLE IDENTITY8

METHOD.....9

PARTICIPANTS AND PROCEDURE9

STATISTICAL ANALYSIS..... 11

RESULTS12

PRELIMINARY ANALYSES 12

DESCRIPTIVE STATISTICS AND CORRELATIONS 12

MAIN HYPOTHESES TESTING 13

DISCUSSION15

PRACTICAL IMPLICATIONS 17

LIMITATIONS AND FUTURE RESEARCH 18

CONCLUSION18

REFERENCES20

APPENDIX26

Introduction

Innovation is an important element of success in the business sector (Nonaka & Takeuchi, 1995) in order for organizations to survive, remain effective and be profitable (Damanpour & Schneider, 2006). Innovation consists of creativity and implementation, two different processes which influence each other in a dynamic way. Creativity is defined as the generation of original and useful ideas (Amabile, 1996; West, 2002), while implementation refers to the ways these ideas are applied in a specific context (Rosing, Frese & Bausch, 2011).

Prior research on innovation has shown that an important factor, that fosters an organization's constant innovation and improvement, is each individual's actions and behaviors, that are characterized by generating ideas, supporting these ideas and promoting their implementation in the workplace (e.g., Van de Ven, 1986; Janssen, 2000) (e.g., Scott & Bruce, 1998). These particular actions, which aim at fostering initiatives and introducing new and creative ideas, products or procedures are defined as innovative work behaviors (De Jong & Den Hartog, 2010). Innovative work behaviors occur as a result of individual factors, such as personality and cognitive resources, as well as contextual factors, such as the work environment or its characteristics (Hammond et al., 2011; Shalley et al., 2004). Leadership, as a contextual factor, is considered to be one of the most important predictors of innovative work behaviors (Hughes, Lee, Wei-Tian, Newman & Legood, 2018) (Lee, Legood, Hughes, Wei-Tian, Newman & Knight, 2019). Leaders have been claimed to be the ones responsible for intellectual stimulation and inspirational motivation of followers, and also for procedures that both foster and increase follower's innovative work behaviors (Hughes, Lee, Wei-Tian, Newman & Legood, 2018).

Different types of leadership have different kinds of effects on innovative work behaviors (Hughes, Lee, Wei-Tian, Newman & Legood, 2018). For instance, transformational leadership benefits the innovation processes through the inspiration and intellectual stimulation that the leader provides to its followers, whereas empowering leadership uses the principles of self-determination and intrinsic motivation to enhance innovative actions (Lee, Legood, Hughes, Wei Tian, Newman & Knight, 2020). Prior work conducted by Rosing and colleagues (2011), introduced and defined ambidextrous leadership (AL) as the most effective leadership style in terms of managing the innovation process. AL consists of three components: opening leadership behaviors, closing leadership behaviors and the flexibility to

switch between them when the situation requires (Rosing et al., 2011; Zacher & Rosing, 2015).

Previous studies have found that AL relates positively to innovative work behaviors (Zacher & Rosing, 2015; Chen et al., 2012; Jansen et al., 2009). More specifically, Zacher and Wilden (2014) have shown that the interplay between the two components of AL, defined above as opening and closing behaviors, relate positively with innovation performance. Previous findings have also shown that AL has a positive effect on an individual (Tung & Tung, 2016), team (Zacher & Rosing, 2015) and organizational level (Trong Tuan, 2017). While these results are important, AL is still a relatively new concept and studies examining the specific mechanisms between AL and innovative work behaviors are still largely missing. Therefore, the field lacks the cohesion and the unification between the different variables that have a role in fostering this relationship. More specifically, the effects of two major creativity components, such as creative process engagement and creative role identity, have not been analyzed yet in a similar model.

The aim of this study is to enrich the existing literature on AL by investigating creative process engagement and creative role identity, as the mediator and moderator respectively, between AL and innovative work behaviors and offer some evidence-based practical recommendations for future use. Prior research on these components has shown that creative process engagement can act as a mediator between organization-related concepts, for instance in the relationship between promotion focus and employees' creativity (Henker, Sonnentag & Unger, 2014), whereas in Wang's and Cheng's study (2010), creative role identity has effectively moderated the relationship between benevolent leadership and creativity. These findings suggest that creative process engagement and creative role identity might influence the relationship between AL and innovative work behaviors. More specifically, this study investigates the following four hypotheses: a possible relationship between AL and innovative work behaviors, the mediating role of creative process engagement in this relationship, the moderating role of creative role identity in the relationship between AL and creative process engagement, and the overall moderated mediation model (see Figure 1).

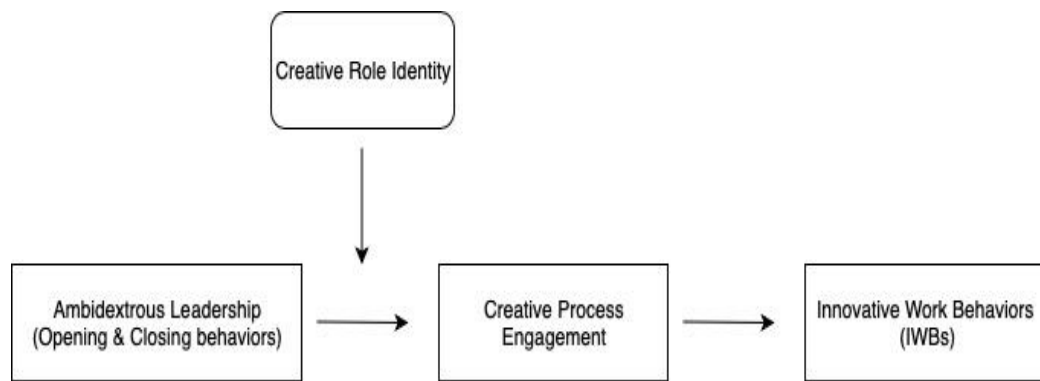


Fig. 1. The moderated mediation model

Literature Review

Innovative work behaviors

Innovative work behaviors refer to individuals' actions that aim to produce, introduce and apply original and useful ideas to the organization and their workplace (De Jong, 2006). This 3-step process is a dynamic process, which is successfully completed when individuals receive sufficient support from their working environment in order to be able to apply these ideas in the workplace (Van der Vegt and Janssen, 2003). As these behaviors encompass the generation, promotion and also the application of novel ideas in the workplace, enhancing followers' innovative work behaviors is one of the most effective ways to boost an organization's innovation processes and help it survive in the competitive market.

Previous studies have shown that leadership is an important antecedent of followers' innovative work behaviors. Afsar, Badir and Saeed (2014) found a positive relationship between transformational leadership and innovative work behaviors, whereas Khan, Aslam and Riaz (2012) found that transactional leadership, contrary to their beliefs, also positively affects followers' innovative work behaviors. This study claims that AL, as a type of leadership, will be positively related to followers' innovative work behaviors while mediated by the creative process engagement of followers, which will vary depending on the levels of followers' creative role identity.

Ambidextrous Leadership

AL is a leadership style that consists of a set of different leaders' behaviors, namely opening and closing, and the ability of these leaders to flexibly switch between these two behaviors according to the given circumstances (Rosing et al., 2011; Zacher & Rosing, 2015).

Opening leadership behaviors are associated with leaders' actions that provide followers with the motivation to explore and experiment with new ideas and alternatives; allow them to find different ways to complete their tasks; enhance their independency; encourage risk taking and challenge the status quo at work (Ceri-Booms, Stouten & Wendt, 2020). Opening leadership behaviors relate to the part of innovation that has to do with creativity. For instance, leaders utilize these behaviors best when they help their followers see issues from different perspectives or when they encourage them to experiment and think of new ways to complete their work.

Closing leadership behaviors, on the other hand, refer to leader actions that help followers narrow down their thinking process; exploit the existing knowledge they have; reduce risk taking behaviors; stick to the plan and focus on using their experience in the most effective ways in order to achieve the desired goals and outcomes (Ceri-Booms, Stouten & Wendt, 2020). This way, followers focus on efficiency, implementation and execution of their ideas. For instance, leaders do that by making plans and sticking to them by committing to deadlines. Finding the balance between these two processes is the key to successfully apply AL in the workplace (Rosing et al., 2011).

Prior literature suggests that AL strategies facilitate organizations to cope with complex tasks and at the same time, enhance followers' creativity (Rosing et al 2011). Based on Bandura's social learning theory (1977) in the workplace, it can be suggested that employees learn what behaviors are expected of them by observing their work environment, and most often their leaders who in this case act as role models (Maddison & Eva, 2019). Ambidextrous leaders are most prone to lead by example, as they are themselves actively involved in both the exploitative and explorative behaviors that they try to induce to their followers (Wang, Eva, Newman & Zhou, 2020). This nonnormative thinking that ambidextrous leaders follow, is what activates the creative processes which allow their followers to be able to expand their way of thinking and adopt innovative work behaviors (Yi, Mao & Wang, 2019). Therefore, in this study, we expect AL to positively relate to innovative work behaviors of followers.

Hypothesis 1: AL is positively related to innovative work behaviors of followers.

Creative process engagement

Creative process engagement is followers' involvement in cognitive processes that are relevant to creativity, such as problem identification, information searching and encoding, as well as idea and alternatives generation (Amabile, 1983; Reiter-Palmon & Lilies, 2004). An important factor in this process is time, as research findings show that the first ideas that people think are usually routine based and less creative, whereas ideas that are more thought of and analyzed in a more systemic way tend to be more creative (Runco, 1986). The more followers engage in such processes, the more they can develop useful and successful solutions for work-related problems.

Previous studies have shown that engagement in creative processes is easier for individuals that are intrinsically motivated and can regulate themselves into spending the sufficient time needed for these type of activities (Kanfer, 1990). When an employee is confident that they can perform their tasks effectively and that they control their work, they are more likely to spend more time dealing with a specific problem and see it from multiple perspectives, use a variety of information from many different sources and create various solutions and alternatives (Gilson & Shalley, 2004; Jabri, 1991). Intrinsically motivated employees are most prone to take risks and come up with new and innovative ideas (Amabile et al., 1996).

The current study claims that creative process engagement is the mechanism through which AL fosters followers' innovative work behaviors. Leaders play an important role in this process, as it is in their power to make clear to their followers of the importance of creative outcomes for the organization and shift their followers' attention into processes that will foster the generation of those outcomes (Zhang & Bartol, 2010). An ambidextrous leader shifts their followers' attention and focus into creative processes, so that the followers spend more time and effort into fully identifying, analysing and solving complex problems in novel and useful ways (Zhang & Bartol, 2010). By adopting opening and closing behaviors, leaders will motivate followers to generate well-searched ideas and also motivate them to think through how these ideas can be implemented in their work environment. This way, leaders increase followers' engagement in creative processes.

Hypothesis 2: Creative process engagement mediates the relationship between AL and innovative work behaviors.

Creative role identity

The second variable that is expected to have an impact in the relationship between AL and innovative work behaviors is creative role identity. Role identity is the way individuals see themselves in different contexts and the meaning these individuals give to this self-view in relation to the specific roles they adopt each time (Farmer, Tierney and Kung-McIntyre, 2003). More specifically, creative role identity refers to the degree at which an employee considers himself/herself as a creative person (Farmer, Tierney, & Kung-McIntyre, 2003). High creative role identity in the workplace means that an individual feels like he/she is creative enough with the tasks he/she has been dealing with, whereas low creative role identity means that the individual doesn't consider himself/herself as much creative.

Role identity theories suggest that individuals tend to behave in ways that represent the self-views they hold about their different roles in life. In other words, people try to remain consistent with the roles they adopt each time and they try to avoid behaving in ways that would derail them from these roles (Riley & Burke, 1995). Creative role identity is each individual's perceptions of their creativity levels and implies that according to these perceptions, individuals will behave differently when it comes to creative tasks at work (Farmer, Tierney, & Kung-McIntyre, 2003). Previous research has shown that creative individuals, when provided with the necessary support by their leaders, most often follow innovative behaviors in their workplace. Erkutlu and Chafra (2015) found that when employees' creative role identity was high, the relationship between servant leadership and innovation implementation behaviour was strengthened. Similarly, Wang and Cheng (2010) found that high creative role identity strengthened the relationship between benevolent leadership and creativity.

The current study claims that creative role identity has a moderating effect on the relationship between AL and creative process engagement. Specifically, when the creative role identity of an individual is high, the effects of AL on creative process engagement will be stronger, whereas when creative role identity is low, the effects of AL will weaken. More specifically, followers who view themselves and who are also viewed by others as creative individuals will benefit more from a leader that motivates them to engage in creative processes, for instance, by investing in creative feedback programs or by encouraging and increasing brainstorming sessions between employees. Followers who don't see themselves as creative will be less interested and less engaged in creative processes and will in turn, be less engaged in innovative behaviors.

Hypothesis 3: Creative role identity moderates the relationship between AL and creative process engagement such that the relationship is stronger when followers' creative role identity is high.

Hypothesis 4 (Moderated Mediation Model): The relationship between AL and innovative work behaviors mediated by the creative process engagement of followers will vary depending on the levels of followers' creative role identity. Specifically, this relationship will be stronger for the high levels of creative role identity.

Method

Participants and procedure

The sample of this study consisted of 98 participants in total, who are all currently working in different types of organizations. Of the 98, 60 (61.2%) were females and 38 (38.8%) were males with $M_{age} = 29.5$, $SD = 5.7$; the participants' total working experience in years was $M_{years} = 7.86$, $SD = 77.67$. The participants' tenure with leaders was $M_{years} = 0.97$, $SD = 10.8$; additionally, the participants' tenure with their current organization was $M_{years} = 1.77$, $SD = 24.8$.

We collected all data via distributing an online survey link, by means of social networks and emails, to the employees of several companies. All participants encountered an information page prior to their participation, containing a brief summary of the purpose of the study and with a reminder of their consent to participate, which they all provided. Emphasis was given to the voluntary and anonymous character of the study, as well as the protection of their data. The study was presented to the participants as a project about ambidextrous leadership and innovative work behaviors of followers in their working environments. Participants were informed that they were allowed to opt-out at any time, as well that there were no right or wrong answers. The survey was distributed in English and its duration was 10 minutes on average.

Measures

Ambidextrous leadership

In their research on leadership, where opening and closing behaviors were found, Rosing et al. (2011) mentioned seven typical behaviour patterns for each style of leadership. Despite the fact that these patterns were not suggested as a scale to measure AL, many researchers used these items to run analyses on AL (Gerlach, Hundeling & Rosing, 2020) (Wang, Eva, Newman & Zhou, 2020). In order to structure an AL scale with high validity, Ceri-Booms, Stouten and Wendt (2020) interviewed a diverse sample of 13 high-tier managers that deal with innovative processes. Based on these interviews and the existing literature, 32 items were developed, 17 measuring opening behaviors and 15 measuring closing behaviors. To ensure the validity of the content and to make certain that these items are capturing the whole essence of “AL”, Ceri-Booms, Stouten and Wendt invited experienced judges from both managerial and non-managerial levels, as well as professionals from the academic field, such as PhD students and PhDs, to check the content validity of these items. After an intensive data analysis process, the final scale consisted of 12 opening and 10 closing behaviour items, which all were used in the current study.

Item examples for opening behaviors are “My manager encourages me to experiment with new ideas” and “My manager encourages me to take risks” whereas for the closing behaviors are “My manager encourages me to follow rules and guidelines” and “My manager encourages me to stick to the plans”. AL was defined to be the ability of balancing the two behaviors. In order to obtain AL score, the integrated balance formula developed by Quinn, Spreitzer and Hart (1992) was used $[(k - 1) - (|X - Y|)] * [(X + Y)/2]$. This formula was created to test opposing constructs together in a single continuous variable, so it's an appropriate tool in order to test the bipolarity of leadership behaviors (Kaiser and Overfield, 2010), in our case opening and closing behaviors. Employees rated these behaviors on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha for the AL scale was .87.

Creative process engagement

For creative process engagement, the study used a 11-item scale that was developed on the basis of the conceptual work of Amabile (1983) and Reiter- Palmon and Illies (2004).

Respondents answered the following question "In your job, to what extent do you engage in the following actions when seeking to accomplish an assignment or solve a problem?" by responding in several statements on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) (e.g. "I spend considerable time trying to understand the nature of a problem"). The statements they had to evaluate were categorized in 3 processes, namely problem identification, information searching and encoding, and idea generation (see Appendix). Cronbach's alpha was .84.

Creative role identity

To measure Creative role identity, the modified Callero's (1985) role identity scale was used (Farmer, Tierney & Kung-Mcintyre, 2003). The scale consisted of three items that reflect the importance for employees to be able to characterize and feel their role identity as being creative. Employees rated their self-view on creative role identity on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) (e.g. "To be a creative employee is an important part of my identity") (see Appendix). Cronbach's alpha was .70.

Innovative work behaviors

For innovative work behaviors, the innovative work behaviors scale by De Jong et al (De Jong & Den Hartog, 2010) was used. The scale consisted of 10 items measuring idea generation, idea implementation and promotion using a 7-point Likert scale ranging from 1 (*Never*) to 7 (*Always*) (e.g. How often do you pay attention to problems that are not part of your daily job?) (see Appendix). Cronbach's alpha was .91.

Statistical analysis

All data were analyzed using SPSS and Process Macro (Hayes & Rockwood, 2020) for moderated mediation models. A power analysis using G*Power was conducted, in order to check the suggested sample size. Effect size was entered as 0,1, while power was set to 0,8 and the number of predictors was set to 3. The estimated sample size for the mediation and moderation tests was found to be 114 people.

4.AL	25.66	5.12	-0.01	-0.14	-0.09	(0.87)					
5.Opening behaviors	5.57	0.83	0.04	-0.08	-0.02	0.28**	(0.89)				
6.Closing behaviors	4.76	0.80	0.12	0.06	-0.02	0.87** *	0.28**	(0.79)			
7.Creative Role Identity	15.68	3.30	0.16	0.21*	-0.07	0.03	0.03	0.08	(0.70)		
8.Creative Process Engagement	59.38	8.14	0.08	0.20	-0.07	0.26**	0.08	0.31* *	0.43***	(0.84)	
9.Innovative Work Behaviors	45.68	10.2 1	0.15	0.14	0.07	0.06	0.09	0.12	0.52***	0.44***	(0.91)

Note: N=98; for gender 0 = female, 1 = male. Cronbach's α coefficients for the multi-item scales are listed in the diagonal.
* $p < .05$, ** $p < .01$, *** $p < .001$

Main Hypotheses testing

A series of multiple regression analyses were conducted in order to examine the hypotheses. In all analyses, the proposed relationships were examined while controlling for gender, age and tenure with leader.

To test Hypothesis 1, a hierarchical regression analysis was run by first entering the control variables and then AL in the second step. As shown in Table 2, the results for the relationship between AL and innovative work behaviors ($\beta = .15$, ns) were not statistically significant. From the chosen control variables, only age had a positive relationship with creative role identity ($r = .21$, $p = .04$) and creative process engagement ($r = .20$, $p = .05$) (see table 3). By means of this analysis, it can be concluded that Hypothesis 1 was not confirmed. Typically, when there is no effect between the independent and dependent variables in a research model, there is no need to run the mediation analysis model (Baron & Kenny, 1986). However, we follow the contemporary approach of Zhao, Lynch and Chen (2010) who

mention that there is no need to have a significant “effect to be mediated” in order to run the mediation model.

In order to test Hypothesis 2, we run a mediation model (model 4) by using PROCESS macro. AL was positively related to creative process engagement ($\beta = .45, p < .01$). Nevertheless, when creative process engagement was entered, the relationship between AL and innovative work behaviors turned negative from positive, and weaker in absolute value, but it remained non-significant ($\beta = -.11, ns$). Furthermore, creative process engagement was found to be positively and significantly related to innovative work behaviors ($\beta = .57, p < .001$). Also, the Sobel test indicated a non-significant indirect effect ($Z = -.64, p = .52$). As a result, Hypothesis 2 was not confirmed.

Hypothesis 3 targeted the moderating effect of creative role identity in the relationship between AL and creative process engagement. The $AL \times$ creative role identity interaction term was not significant for creative process engagement ($\beta = -.07, ns$). By means of this analysis, it can be concluded that Hypothesis 3 is not confirmed.

Hypothesis 4 suggested that the relationship between AL and innovative work behaviors is mediated by the creative process engagement of followers, and this will vary depending on the levels of follower’s creative role identity. The non-significant findings obtained from Hypothesis 2 and Hypothesis 3 take away the need to test for the whole model. As expected, the index of moderated mediation ($\beta = -.04$, with 95% CI: $-.11$ to $.04$) indicates that the indirect effect is not conditional on the level of the moderator variable creative role identity. Consequently, Hypothesis 4 was not supported (see Table 3).

Table 2: Results of hierarchical regression analysis

	Innovative Work Behaviors			Creative Process Engagement			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control variables							
Gender (1, male; 0, female)	2.49	2.41	2.00	.94	.71	-.20	.05
Age	.19	.21	.01	.31 *	.36 *	.24	.21
Tenure	.02	.03	.07	-.10	-.09	-.04	-.03
Independent variables							
Ambidextrous Leadership		.15	-.11		.45 **	.42 **	1.44 *
Mediator							

Creative Process Engagement			.57	***						
Moderator										
Creative Role Identity						.96	***	2.55	*	
Interaction										
Ambidextrous Leadership × Creative Role Identity										-.07
Change Statistics										
<i>R</i> ²	.03	.04	.22		.06	.14		.27		.29
ΔR^2	.03	.01	.18	***	.06	.08	**	.13	***	.02
<i>F</i>	1.11	.53	21.11	***	1.89	8.42	**	17.60	***	2.28
(<i>df</i> ₁ , <i>df</i> ₂)	(3, 94)	(1, 93)	(1, 92)		(3, 94)	(1, 93)		(1, 92)		(1, 91)
ANOVA										
<i>F</i>	1.11	.96	5.16	***	1.89	3.63	**	6.95	***	6.25
(<i>df</i> ₁ , <i>df</i> ₂)	(3, 94)	(4, 93)	(5, 92)		(3, 94)	(4, 93)		(5, 92)		(6, 91)

Note: *N*=98; for gender 0 = female, 1 = male;
 * *p* < .05, ** *p* < .01, *** *p* < .001

Table 3: Indirect effects of AL through Creative Process Engagement at values of Creative Role Identity.

Creative Role Identity	Innovative Work behaviors	
	β	95% CI
Low (-1 SD) = 12.38	0.36	-.01 to .74
Mean=15.68	0.24	-.05 to .47
High (-1 SD) = 18.98	0.12	-.12 to .43

Note: *N*=98; 5000 bootstrap samples

Discussion

The current study tested a moderated mediation model focused on AL and innovative work behaviors. The aim of this study was to contribute to the existing literature of AL, which is relatively new, by explaining the indirect relationship between AL and innovative work behaviors, when it is mediated by creative process engagement and affected by low,

mediocre or high levels of creative role identity. Based on previous studies, AL relates positively with innovative work behaviors (Zacher & Rosing, 2015; Chen et al., 2012; Jansen et al., 2009). Contrary to this study's expectations, the results do not support the moderated mediation model regarding the relationship between AL and innovative work behaviors. In our study, whether the levels of creative role identity were low, mediocre or high, there was no significant relationship found between AL and innovative work behaviors, mediated by creative process engagement. This might be due to our small sample size or outside factors that we couldn't control, such as the environment that the respondents filled out the survey or the pandemic's influence in the working environment and personal life of the participants. Although the moderated mediation model was not supported, the analyses showed some other significant positive relationships between our variables that can contribute to the existing literature.

Our findings contribute to the AL literature in two ways. First, our results provided with insights on the importance of creative process engagement in the AL implementation in the workplace. We found that ambidextrous leaders most often provide their followers with opportunities to understand and see problems from different perspectives, use a wide variety of information from many different sources and be able to come up with alternative ideas and solutions. This aligns with Shalley's findings (1991, 1995) that when leaders share goals around creativity with their followers, they enhance the engagement and performance of the latter in the organization's creative processes. At the same time, followers' engagement in these creative processes helped them increase their innovative behaviors in their workplace by more often generating and communicating original ideas to their teams and organizations. By applying these ideas in the workplace, individuals come to a new understanding of their work field and they pave the way for further innovative ideas to be adopted in the future (Mumford, 2000).

Second, we confirmed that creative role identity is positively and significantly related to creative process engagement. This implies that individuals who think of themselves as creative and consider this an important aspect of their work identity, are more likely to spend a considerable amount of time thinking of different potential solutions to their problems and stepping away from the more traditional and known ways of dealing with their issues at work. Based on the creative role identity literature, when creative individuals deal with creative tasks, they get to confirm this part of their identity and tend to search for similar opportunities for self-validation even more in the future (McCall & Simmons, 1978; Riley & Burke, 1995). Ambidextrous leaders, with their focus being on cultivating both exploitative

and explorative methods, are the ones that are able to provide their followers with the right amount of opportunities to enhance their creativity and keep them engaged at work and aligned with their creative selves.

Additionally, regarding our demographic variables, age was found to be positively related with both creative role identity and creative process engagement. It is safe to say that, based on these results, the older the individuals are, the more creative they feel, and it appears more common for them to be involved in the creative processes of their organization. Based on the role identity literature, after repeated experiences and behaviors that might be considered as important to peoples' sense of self, people might form a central role identity based on these specific experiences (Charng, Piliavin & Callero, 1988). It seems plausible that older people, having multiple self-validating experiences around creativity, which further strengthened their creative role identities, are likely to be more confident in considering themselves as creative individuals that deal regularly with creative tasks at work, thus the positive correlation of age with creative role identity and creative process engagement in our study.

Practical implications

Our findings also have important practical implications. First, organizations that wish to follow AL strategies in order to reach their innovation outcomes, should give the appropriate space, opportunities and trainings to leaders that are able to adapt to this flexible style of leadership and that are capable to effectively transmit their knowledge and best practices to their followers. Second, ambidextrous leaders are advised to engage themselves in creative processes, as leading by example has been proven to be the most effective way to inspire your followers to act accordingly. By explaining the importance and benefits of following new and original ways of dealing with the tasks at hand to their followers, ambidextrous leaders can make sure that the aforementioned will push themselves to come up with a variety of different solutions to reach the organizational goals.

Finally, based on the results that creative role identity positively relates to creative process engagement, ambidextrous leaders need to be extra attentive when handing tasks to their followers. More specifically, when the task at hand requires innovative and out-of-the-box thinking, a leader should lean more towards choosing an individual that thinks of themselves as a creative person, in order to complete the task successfully. By allowing their followers to view an issue from multiple perspectives, provide a wide variety of information and allow risk taking, they can ensure that creative individuals feel autonomous enough to effectively

deal with their assigned projects. On the contrary, when a task requires deep focus and exploiting all of the existing knowledge of the company, then a leader should opt to choose an individual that doesn't identify much as creative, as these individuals are more prone to follow rules and guidelines, and they will be more efficient in sticking to the plans and deadlines in order to get the work done.

Limitations and future research

Although this study contributes to the literature on AL, there are some limitations that need to be considered. First, the sample size was generally small ($N = 98$). The initial G*Power analysis suggested a sample size of 114 people, but the final sample size was 98 people. Therefore, the results need to be interpreted with caution and an additional analysis with a larger sample size would be necessary in future studies. Second, this was a cross-sectional study and measured AL attitudes at a specific point in time. This doesn't allow for drawing conclusions regarding causal inferences between our variables. Third, the research was distributed as an online survey to the respondents whilst during a pandemic, which heavily influenced the factors of not knowing under which conditions and settings these surveys were answered. Because of the COVID-19 impact in the workforce environment, it is possible that it also had an impact on our participants ability to concentrate and focus to effectively respond to the questions asked.

Finally, this study took into consideration only the employees' self-assessment scores when it comes to innovative work behaviors. It is suggested that in future studies, the leaders' opinions on their followers' innovative work behaviors should also be measured, as this will reduce the bias that might influence the followers' scores.

Conclusion

Innovation is a vital element for organizations to survive in the current competitive world, hence leaders constantly try to enhance their followers' innovative work behaviors. The present study makes an important contribution to the growing body of literature on ambidextrous leadership and its relationship with creative process engagement, creative role identity and innovative work behaviors. The overall moderated mediation model was not supported, but results showed significant positive relationships between ambidextrous leadership and creative process engagement, as well as a moderation effect of creative role

identity on creative process engagement. The association of these creativity components with ambidextrous leadership's practices extends our understanding on how ambidextrous leadership's different components can be used by leaders to enhance their follower's sense of creativity and their innovative initiatives and thus, boost their overall performance.

References

- Afsar, B., F. Badir, Y., & Bin Saeed, B. (2014). Transformational leadership and innovative work behavior. *Industrial Management & Data Systems*, 114(8), 1270-1300.
- Amabile, T. (1983). The social psychology of creativity: A componential conceptualization. *Journal Of Personality And Social Psychology*, 45(2), 357-376.
- Amabile, T. M. (1996). Creativity and innovation in organizations. *Harvard Business School Background Note 396-239*, January 1996
- Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of innovation. *Management Decision*, 47(8), 1323-1339.
- Baron, R., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal Of Personality And Social Psychology*, 51(6), 1173-1182.
- Callero, P., Howard, J., & Piliavin, J. (1987). Helping Behavior as Role Behavior: Disclosing Social Structure and History in the Analysis of Prosocial Action. *Social Psychology Quarterly*, 50(3), 247.
- Ceri-Booms, M., Stouten, J. & Wendt, H. (2020) A new and validated scale of Ambidextrous Leadership
- Charng, H. W., Piliavin, J. A., & Callero, P. L. (1988). Role identity and reasoned action in the prediction of repeated behavior. *Social psychology quarterly*, 303-317.
- Damanpour, F., & Schneider, M. (2006). Phases of the Adoption of Innovation in Organizations: Effects of Environment, Organization and Top Managers1. *British Journal Of Management*, 17(3), 215-236.
- De Jong, J. P., & Den Hartog, D. N. (2008). Innovative work behavior: Measurement and validation. *EIM Business and Policy Research*, 8(1), 1-27.

De Jong, J., & den Hartog, D. (2010). Measuring Innovative Work Behaviour. *Creativity And Innovation Management*, 19(1), 23-36.

De Jong, J. (2006). *Individual innovation: the connection between leadership and employees' innovative work behavior*. EIM Business and Policy Research.

Erkutlu, H., & Chafra, J. (2015). The Effects of Empowerment Role Identity and Creative Role Identity on Servant Leadership and Employees' Innovation Implementation Behavior. *Procedia - Social And Behavioral Sciences*, 181, 3-11.

Farmer, S., Tierney, P., & Kung-Mcintyre, K. (2003). Employee Creativity in Taiwan: An Application of Role Identity Theory. *Academy Of Management Journal*, 46(5), 618-630.

Gerlach, F., Hundeling, M., & Rosing, K. (2020). Ambidextrous leadership and innovation performance: a longitudinal study. *Leadership & Organization Development Journal*, 41(3), 383-398.

Gilson, L., & Shalley, C. (2004). A Little Creativity Goes a Long Way: An Examination of Teams' Engagement in Creative Processes. *Journal Of Management*, 30(4), 453-470.

Henker, N., Sonnentag, S., & Unger, D. (2014). Transformational Leadership and Employee Creativity: The Mediating Role of Promotion Focus and Creative Process Engagement. *Journal Of Business And Psychology*, 30(2), 235-247.

Holmqvist, M. (2004). Experiential learning processes of exploitation and exploration within and between organizations: An empirical study of product development. *Organization science*, 15(1), 70-81.

Hughes, D. J., Lee, A., Tian, A. W., Newman, A., & Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *The Leadership Quarterly*, 29(5), 549-569.

- Jabri, M. (1991). The Development of Conceptually Independent Subscales in the Measurement of Modes of Problem Solving. *Educational And Psychological Measurement, 51*(4), 975-983.
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and organizational psychology, 73*(3), 287-302.
- Janssen, O. (2005). The joint impact of perceived influence and supervisor supportiveness on employee innovative behaviour. *Journal of occupational and organizational psychology, 78*(4), 573-579.
- Jiang, W., & Gu, Q. (2017). Leader creativity expectations motivate employee creativity: A moderated mediation examination. *The International Journal of Human Resource Management, 28*(5), 724-749.
- Johannessen, J., Olsen, B., & Lumpkin, G. (2001). Innovation as newness: what is new, how new, and new to whom?. *European Journal Of Innovation Management, 4*(1), 20-31.
- Kaiser, R. B., & Overfield, D. V. (2010). Assessing flexible leadership as a mastery of opposites. *Consulting Psychology Journal: Practice and Research, 62*(2), 105.
- Kanfer, R. (1990). Motivation theory and industrial and organizational psychology. *Handbook of industrial and organizational psychology, 1*(2), 75-130.
- Khan, M. J., Aslam, N., & Riaz, M. N. (2012). Leadership styles as predictors of innovative work behavior. *Pakistan Journal of Social and Clinical Psychology, 9*(2), 17-22.
- Kleysen, R. F., & Street, C. T. (2001). Toward a multi-dimensional measure of individual innovative behavior. *Journal of intellectual Capital, 2*(3), 284-296.
- Koff, R. (1992). Giving blood: The development of an altruistic identity. J.A. Piliavin and P.L. Callero, 313 pp. Baltimore: Johns Hopkins University Press, 1991. *Hepatology, 16*(3), 853-854.

- Lee, A., Legood, A., Hughes, D., Tian, A. W., Newman, A., & Knight, C. (2020). Leadership, creativity and innovation: A meta-analytic review. *European Journal of Work and Organizational Psychology*, 29(1), 1-35.
- Ma, J., Zhou, X., Chen, R., & Dong, X. (2019). Does ambidextrous leadership motivate work crafting?. *International Journal of Hospitality Management*, 77, 159-168.
- Madison, K., & Eva, N. (2019). Social exchange or social learning: a theoretical fork in road for servant leadership researchers. In *Leading for high performance in Asia* (pp. 133-158). Springer, Singapore.
- March, J. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, 2(1), 71-87.
- Mumford, M. D. (2000). Managing creative people: Strategies and tactics for innovation. *Human resource management review*, 10(3), 313-351.
- Quinn, R. E., Spreitzer, G. M., & Hart, S. L. (1992). Integrating the extremes: Crucial skills for managerial effectiveness. *Executive and organizational continuity: Managing the paradoxes of stability and change* (pp. 222-252). San Francisco, Jossey-Bass.
- Reiter-Palmon, R., & Illies, J. J. (2004). Leadership and creativity: Understanding leadership from a creative problem-solving perspective. *The Leadership Quarterly*, 15(1), 55-77.
- Riley, A., & Burke, P. J. (1995). Identities and self- verification in the small group. *Social Psychology Quarterly* , 58 , 61-73.
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The leadership quarterly*, 22(5), 956-974.
- Sanders, K. S., Moorkamp, M., Torka, N., Groenveld, S., & Groenveld, C. (2010). How to support innovative work behavior? The role of LMX and satisfaction with hr practice. *Technology and Investment*, 1, 59–68.

Shalley, C. E. (1991). Effects of productivity goals, creativity goals, and personal discretion on individual creativity. *Journal of Applied Psychology*, 76, 179-185.

Shalley, C. E. (1995). Effects of coaction, expected evaluation, and goal setting on creativity and productivity. *Academy of Management Journal*, 38, 483-503.

Scott, S. G., & Bruce, R. A. (1994, October). Creating innovative behavior among R&D professionals: the moderating effect of leadership on the relationship between problem-solving style and innovation. *Proceedings of 1994 IEEE International Engineering Management Conference-IEMC'94* (pp. 48-55). IEEE.

Van der Vegt, G. S., & Janssen, O. (2003). Joint impact of interdependence and group diversity on innovation. *Journal of management*, 29(5), 729-751.

Wang, A. C., & Cheng, B. S. (2010). When does benevolent leadership lead to creativity? The moderating role of creative role identity and job autonomy. *Journal of organizational behavior*, 31(1), 106-121.

Wang, S., Eva, N., Newman, A., & Zhou, H. (2020). A double-edged sword: the effects of ambidextrous leadership on follower innovative behaviors. *Asia Pacific Journal of Management*, 1-22.

West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied psychology*, 51(3), 355-387.

Yidong, T., & Xinxin, L. (2013). How ethical leadership influence employees' innovative work behavior: A perspective of intrinsic motivation. *Journal of Business Ethics*, 116(2), 441-455

Yi, L., Mao, H., & Wang, Z. (2019). How paradoxical leadership affects ambidextrous innovation: The role of knowledge sharing. *Social Behavior and Personality: an international journal*, 47(4), 1-15.

Zacher, H., & Rosing, K. (2015). Ambidextrous leadership and team innovation. *Leadership & Organization Development Journal*, 36(1), 54-68.

Zacher, H., Robinson, A. J., & Rosing, K. (2016). Ambidextrous leadership and employees' self-reported innovative performance: The role of exploration and exploitation behaviors. *The Journal of Creative Behavior*, 50(1), 24-46.

Zhao, C., & Gao, Z. (2014). The Effect of Authentic Leadership on Leader Creativity: The Mediating Role of Creative Process Engagement. *Advanced Materials Research*, 945-949, 2982-2986.

Zhao, X., Lynch, J., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal Of Consumer Research*, 37(2), 197-206.

Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of management journal*, 53(1), 107-128.

Appendix

Innovative work behavior scale (De Jong & Den Hartog, 2010).

How often does this employee . . .

- . . . 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?

Creative process engagement scale (Amabile, 1983; Perry-Smith, 2006; Reiter-Palmon and lilies, 2004).

Problem identification:

1. I spend considerable time trying to understand the nature of the problem.
2. I think about the problem from multiple perspectives.
3. I decompose a difficult problem/assignment into parts to obtain greater understanding.

Information searching and encoding:

4. I consult a wide variety of information.
5. I search for information from multiple sources (e.g., personal memories, others' experience, documentation, Internet, etc.).
6. I retain large amounts of detailed information in my area of expertise for future use.

Idea generation:

7. I consider diverse sources of information in generating new ideas.
8. I look for connections with solutions used in seeming diverse areas.
9. I generate a significant number of alternatives to the same problem before I choose the final solution.
10. I try to devise potential solutions that move away from established ways of doing things.
11. I spend considerable time shifting through information that helps to generate new ideas.

Creative role identity scale (Farmer, Tierney & Kung-Mcintyre, 2003).

1. I often think about being creative.
2. I do not have any clear concept of myself as a creative employee. (reverse-coded)
3. To be a creative employee is an important part of my identity.

Ambidextrous leadership scale

AL items can be obtained from dr. Meltem Ceri-Booms (s.m.ceri-booms@uu.nl).