

Understanding managerial ambidexterity: a people–situation interaction approach

Ruifang Wang

Maynooth University School of Business, Maynooth, Ireland, and

Patrick Gibbons

UCD Michael Smurfit Graduate Business School, Dublin, Ireland

Abstract

Purpose – It is increasingly recognised that managers play a central role in organisational ambidexterity. While some scholars have recently begun to explain the nature and antecedents of ambidextrous behaviour among managers, much remains to be learned about the micro-foundations of this behaviour. Adopting a people–situation interaction approach, this paper investigates the antecedents to managerial ambidexterity from both situational and individual difference considerations.

Design/methodology/approach – This study adopts a quantitative approach using a combination of survey and archival data from 305 managers.

Findings – The results indicate that learning goal orientation is positively related with managerial ambidexterity, whereas there is no significant relationship between functional experience breadth and managerial ambidexterity. In testing moderation effects, discretionary slack is found to positively moderate the association between learning goal orientation and ambidexterity and between functional experiences and ambidexterity.

Practical implications – This paper provides suggestions on employees selection and training, along with organisational support, in enacting managerial ambidexterity.

Originality/value – Guided by individual difference theory, this paper adds value to one's understanding of the antecedents to managerial ambidexterity. It contributes to the ambidexterity literature from the micro-foundation perspective.

Keywords Managerial ambidexterity, Individual differences, People–situation interaction, Learning goal orientation, Functional experience breadth, Discretionary slack

Paper type Research paper

Ambidexterity – “the ability of humans to use both hands with equal skill” – has been used as a metaphor for organisations that simultaneously address exploitation and exploration activities (Simsek, 2009, p. 597). Responding to increasingly fierce competition and a fast-changing environment, ambidexterity has gradually become an imperative for organisations and is generally associated with better performance (Ahearn *et al.*, 2004; Lubatkin *et al.*, 2006; Gibson and Birkinshaw, 2004) (see Junni *et al.* (2013) for a review of organisational ambidexterity and performance).

While most research on ambidexterity has focussed on the corporate or business unit level of analysis, with few exceptions, the ambidextrous activities of managers have received less theoretical and empirical attention (Raisch and Birkinshaw, 2008; Papachroni and Heracleous, 2020; Rogan and Mors, 2014). This research gap is surprising given that some authors acknowledged the importance of understanding individual ambidexterity nearly two decades ago. For instance, studies found that a firm will be in a better position to be ambidextrous if its managers: have the skills needed to both compete in a mature market and



develop new products and services (Tushman and O'Reilly, 1996); engage in both routine and non-routine activities (Adler *et al.*, 1999); exercise both emergent and planned management styles (Lewis *et al.*, 2002); or perform both collective and creative actions (Sheremata, 2000). Studies further emphasised that a firm's ambidexterity is largely rooted in the ambidextrous behaviours of its managers (Jansen *et al.*, 2009; O'Reilly and Tushman, 2011; Taylor and Helfat, 2009; Gibson and Birkinshaw, 2004). A recent study explicitly found a strong positive association between managers' ambidexterity and organisational ambidexterity (Mom *et al.*, 2019). This attention to individual ambidexterity reflects the essence of the micro-foundation approach to strategy research, which suggests that system-level performance is rooted in individual-level action and interaction (Felin and Foss, 2005; Felin and Hesterley, 2007; Barney and Felin, 2013; Teece, 2007). Thus it is important to understand ambidextrous behaviour at the individual level. In practice, managers often struggle to be ambidextrous, as exploitation and exploration require them to engage in very different types of activities.

Managerial ambidexterity refers to a manager's "behavioural orientation toward combining exploration and exploitation related activities within a certain period of time" (Mom *et al.*, 2009, p. 812). While research progresses in connecting this behaviour with organisational level ambidexterity, little attention has focussed on this behaviour *per se* (Wooldridge *et al.*, 2008; Raisch and Birkinshaw, 2008). This paper therefore aims to advance the ambidexterity literature by adopting a micro-foundation principle of placing managerial ambidextrous behaviour as the locus of interest.

Recent research has started to investigate organisational factors that shape managerial ambidexterity. While a focus on organisational mechanisms provides a useful point of departure, it sidesteps the more fundamental influence of managers' dispositions and experiences that might predispose managers towards ambidextrous behaviours. The advocates of the micro-foundation perspective also suggest that micro-level analyses are more stable, fundamental and general than macro-level explanations (Foss, 2010). In other words, the macro mechanisms explain the context players live in, while individual factors drill down to the fundamental origins of individual differences *per se*. Scholars have called for more research on the individual predispositions that serve as fundamental drivers in shaping managerial ambidexterity (Laureiro-Martínez *et al.*, 2015; Papachroni and Heracleous, 2020).

The main purpose of this paper is to enhance understanding about how individual differences combine with situational factors in shaping managerial ambidexterity. Specifically: (1) we adopt individual difference psychology literature (Funder, 2012; Yukl, 2012; Zaccaro, 2007) to build a coherent model consisting of individual traits (learning goal orientation) and skills (functional experience breadth) that combine to facilitate managerial ambidexterity; (2) guided by the people-situation interaction rationale (Endler and Magnusson, 1976; Pervin, 1978; Schneider, 1983; Lewin, 1951) in general and trait/ability activation theory (Tett and Burnett, 2003; Tett and Guterman, 2000) in particular, this paper examines how a contextual situation (discretionary slack) influences the effect of individual differences on managerial ambidexterity. The rest of the paper is structured as follows: we first elaborate the theory and recent literature around managerial ambidexterity. Then we develop our theoretical model proposing four hypotheses. The methods section explains our data collection process, combining survey and archival data based on responses from 305 managers. After analysing and reporting the results, we elaborate our contribution, implications for theory and practice, research limitations and future research directions.

Theory and hypotheses

The literature on organisational ambidexterity has achieved a general consensus on the benefit it can bring to unit/organisational performance (Lubatkin *et al.*, 2006; He and Wong, 2004; Gibson and Birkinshaw, 2004). The predominant efforts at investigating antecedents to

enable organisational ambidexterity start at the organisational level with factors such as the firm's structure, system, context and various other mechanisms. The deployment of organisational factors helps to guide, shape and promote individual behaviour, but it is ultimately the individuals themselves who make a difference.

Using juggling as a metaphor, [Tushman and O'Reilly \(1996\)](#) highlighted that managers need to hold ambidextrous skills and be able to do both exploratory and exploitative activities at same time. As shared among scholars ([March, 1991](#); [Papachroni and Heracleous, 2020](#); [Gupta et al., 2006](#); [Mom et al., 2009](#)), the core of a manager's exploitation activity is the reduction of variance, while the core of a manager's exploration activity is the enhancement of variance. Thus, exploitation activities are relevant to deepening managers' existing knowledge base by adopting a short-term orientation, familiarising with existing operations, using and refining current technological advantages, penetrating existing markets, serving current customers and specifying and monitoring existing organisational mechanisms. Whereas exploration activities are associated with broadening managers' existing knowledge base by adopting a long-term orientation, promoting critical thinking on new alternatives, experimenting with new technologies and solutions, searching for new markets and customers and potentially breaking current organisational norms and routines ([Mom, 2006](#); [Rosing et al., 2011](#)).

Managers are regarded as ambidextrous when they engage in both exploitation and exploration activities within a certain period of time ([Mom et al., 2009](#)). Ambidextrous managers share common characteristics: they host contradictions; they are multitaskers, they both refine and renew their knowledge, skills and expertise ([Mom et al., 2009](#)); and they have flexibility to switch between exploration and exploitation as the situation requires ([Tempelaar and Rosenkranz, 2019](#)). However, these attributes are easier to be theorised than practically mastered. For example, studies found that it would be difficult for an individual to switch between and even more difficult to excel simultaneously at exploration and exploitation ([Gupta et al., 2006](#); [Bidmon and Boe-Lillegraven, in press](#); [Tempelaar and Rosenkranz, 2019](#)). Therefore, more research on the factors to facilitate managers' ambidextrous behaviours is needed.

Much of the research has focussed on the organisational mechanisms that contribute to managers' ambidextrous behaviour. For example, [Schnellbacher et al. \(2019\)](#) found that both organisational architecture and organisational context can induce individual ambidexterity. Another study found that a set of firm-level HR practices, including ability-enhancing, opportunity-enhancing and motivation-enhancing practices, could collectively influence managerial ambidexterity ([Mom et al., 2019](#)). Performance incentives may also influence individuals' preferences between exploring new ideas and exploiting existing ideas ([Lee and Meyer-Doyle, 2017](#)).

More fundamentally, a few pioneering studies have addressed this issue from an individual level of analysis. For example, [Sok et al. \(2016\)](#) investigated individuals' service-sale ambidexterity and found that various types of motivation factors, such as locomotion, assessment orientation, enjoyment of work and driven work jointly influence salespersons' ambidexterity. Psychologically, general self-efficacy was also found to predict individual ambidexterity positively through learning orientation ([Kauppila and Tempelaar, 2016](#)). [Tempelaar and Rosenkranz \(2019\)](#) found that individual differences in how easily they can cognitively switch across multiple roles are a key factor in shaping managerial ambidexterity. [Papachroni and Heracleous \(2020\)](#) identified three key individual practices to facilitate ambidexterity, namely engaging in hybrid tasks, capitalising cumulatively on previous learning and adopting a mindset of seeking synergies between exploration and exploitation.

This paper aims to advance our understanding of managerial ambidexterity through a closer look at managers' individual differences. Further, because psychologists argue that

both individual differences and situational factors combine in shaping different human behaviours (Mischel, 1968, 1977), this paper adopts a people–situation interaction approach (Endler and Magnusson, 1976; Pervin, 1978; Schneider, 1983; Lewin, 1951) to combine individual and situational characteristics to assess the drivers of managerial ambidexterity.

Under the lens of individual difference psychology, we propose that there is a specific mix of individual difference factors required to undertake ambidextrous activities. Unlike other functional or routine tasks, ambidextrous activities are rarely explicit in a manager's job description. Given the non-compulsory and cognitively challenging nature of managerial ambidexterity, managers need a high level of motivation and strong cognitive capability to enact this behaviour. Specifically, managers need an intrinsic motivation and a strong willingness to discover opportunities and learn new skills. Second, they need to be cognitively complex, accumulated through diverse personal and functional experiences, for grappling with cross-functional contradictions and conducting multiple tasks. We now unfold the specific factors in more detail further.

Learning goal orientation

Learning goal orientation is a disposition towards developing abilities in achievement situations (Dweck and Leggett, 1988; VandeWalle, 1997). Individuals who have a strong learning goal orientation tend to see input (such as effort) and output (such as negative performance appraisal) from a positive perspective (Dweck and Leggett, 1988; Dweck, 1986). Learning-oriented individuals tend to view hard work as the path or means for enhancing personal ability. They believe great effort activates mastery in ability. Thus, there is an assumed positive relationship between effort and performance. In responding to challenges and setbacks, individuals with different levels of learning goal orientation demonstrate contrasting affects. Learning-oriented individuals regard negative feedback simply as a signal for requiring further effort and assume a positive link between effort and ability mastery, whereas their counterparts who lack a learning orientation interpret effort and negative feedback as a signal of lower ability.

The differences described earlier create different behaviours in terms of task choices and execution (VandeWalle *et al.*, 2001). When faced with goal setting and task choices, individuals with a strong learning orientation value the improvement in ability and enjoy the process to build their skills. They tend to rapidly increase their personal goals over time. This guides them to update their goals when their previous goals are achieved (Button *et al.*, 1996). Quite differently, individuals with weak learning goal orientation are less motivated to enrich themselves and are reluctant to participate in extra-role activities. In terms of task execution, learning-oriented individuals would not easily quit from challenging tasks. Instead, the positive cognition and affect associated with learning orientation energise them for persistent task execution and enhanced performance by acquiring both domain relevant and creatively related skills (Seijts *et al.*, 2004). By contrast, individuals with weak learning goal orientation are vulnerable when they consistently interpret outside feedback negatively, are not motivated to seek extra-role knowledge and tend to give up in the face of difficulties.

To conclude, managers differ in their levels of learning goal orientation. As a result, they are predisposed differently in terms of task choices and execution when they face the same strategic stimuli. These factors collectively provide intrinsic motivation for managers to either embrace or avoid ambidextrous activities. Specifically, managers' learning goal orientation relates to their ambidexterity by enabling them to embrace novelty, contradictions and self-motivated effort. This discussion leads to the following hypothesis:

- H1.* There is a positive relationship between managers' learning goal orientation and their ambidexterity.

Functional experience breadth

Functional experience breadth (also called “intra-personal heterogeneity” by [Burke and Steensma \(1998\)](#)) describes the extent to which individuals have accumulated experience across different functional specialisations relevant for the organisation ([Bunderson, 2003](#); [de Vries et al., 2013](#)). Experience reflects a kind of learning by doing. Managers acquire skills and knowledge (cognitive content) through their functional work experiences. They also tend to interpret strategic stimuli through their occupational and professional lenses (cognitive structure) ([Dearborn and Simon, 1958](#)).

Managers’ functional experiences exert an influence on their ambidextrous behaviour through two sub-processes of information processing: differentiation and integration. Differentiation is defined as an individual’s perception about several aspects, characteristics and dimensions of a given stimulus and the different ways for individuals to evaluate, think about, relate to or interpret that stimulus ([Suedfeld and Bluck, 1993](#)). Functionally diverse managers accumulate lots of frame-breaking experiences by interacting with different areas of business ([de Vries et al., 2013](#)). They have a fundamental understanding of multiple functions’ paradigms and tend to associate them with a given stimulus ([Mumford and Gustafson, 1988](#)). The differentiation sub-process serves as a prerequisite for the second sub-process, integration. This component refers to an individual’s recognition of links between or among the differentiated characteristics. Such links may incorporate categorisation, trade-offs, contradictions, combinations, synergies and so on ([Suedfeld and Bluck, 1993](#)).

Thus, functionally diverse managers are less likely to be blind-sided by selective perception ([Burke and Steensma, 1998](#)) and are more open to a range of alternative perspectives. This experience promotes their divergent and critical thinking that generates new potential solutions ([Mumford and Gustafson, 1988](#)). Their broad range of expertise gives them more latitude to think flexibly and address tensions across competing logics derived from exploration and exploitation ([Wang et al., 2018](#)). Conversely, functionally focussed managers have spent their career within a limited number of functional appointments and acquired a certain dominant functional orientation. They have high potential to suffer from selection bias, are likely to be blind-sided by dominant functional logics and tend to filter environmental stimuli from their more limited cognitive frame ([Lewis, 2000](#)). They feel difficult to integrate contradicting trade-offs and more likely to experience role conflicts when engaging in competing initiatives, such as ambidexterity, that straddle functional domains. They find it more difficult to take diverse alternatives into account to make well-thought and flexible ambidextrous actions.

To summarise, managers’ functional experience breadth relates to their ambidexterity by equipping them with the requisite cognitive variety and flexibility to reconcile paradoxical exploitation–exploration logics through both differentiation and integration processes. Thus the following hypothesis is proposed:

H2. There is a positive relationship between managers’ functional experience breadth and their ambidexterity.

So far, we have argued that managers differ in fundamental ways in terms of their learning goal orientation and functional experience breadth, and these differences can help to explain their awareness, perception and interpretation of strategic cues, their motivation and willingness to embrace diversity and contradictions and their skill and abilities for exercising ambidextrous tasks. However, managers do not exist in a situational vacuum. According to the situational perspective ([Mischel, 1968, 1977](#)), the situational context serves as a stimulus that could modify individuals’ behaviours. We argue that the availability (or lack) of slack is a potential enabler/constraint of managerial ambidexterity. Thus, even as managers may be positively predisposed towards ambidextrous behaviour as a function of their learning goal orientation and functional experience breadth, these factors ultimately interact with

discretionary slack in shaping their ambidextrous behaviour. Thus, the next section looks at how discretionary slack moderates the relationship between learning goal orientation and managerial ambidexterity and the relationship between functional experiences breadth and managerial ambidexterity.

Discretion is the latitude of managerial action (Hambrick and Finkelstein, 1987). Slack is a cushion of actual or potential resources that allows an organisation to adapt successfully to both internal and external pressures and to initiate strategic changes (Bourgeois, 1981; Cyert and March, 1963). Discretionary slack is a manager-level variable and is defined as a resource that is assessed by managers as available, visible and can be deployed in the future (Simsek *et al.*, 2007; Sharma, 2000; Sharfman *et al.*, 1988). Sharfman *et al.* (1988) noted that high discretion slack, such as spare time and free resources, is fungible and can be used to various purposes and under different contexts. Whereas low discretion slack in the form of idle machines, excess production capability and idle specialised service personnel is specific and usually is bound to limited ranges of situations and deployments.

Interactive effects of learning goal orientation and discretionary slack

Learning goal-oriented managers tend to respond positively to situations that are likely to maintain their positive cognitions and affect (Kacmar *et al.*, 2009). Learning-oriented managers strive to develop their abilities through every opportunity, including discretionary ambidextrous challenges. They are more motivated if the nature of the work and work environment is consistent with their values. This congruence combines their intrinsic motivation (learning goal orientation) with extrinsic motivation (support environment), suggested as an ideal condition for trait-relevant behaviour expression (Tett and Burnett, 2003). In this regard, a favourable situation to stimulate managers' behavioural expression of their learning goal orientation is one with a high level of discretionary slack enabling the possibilities to support more learning opportunities. This favourable environment activates the self-regulatory tendencies of managers that are critical for their active involvement in ambidextrous behaviour. The earlier discussion leads to the following hypothesis:

- H3. Discretionary slack moderates the relationship between learning goal orientation and managers' ambidexterity, such that the relationship is strengthened as discretionary slack increases and weakened as discretionary slack decreases.

Interactive effects of functional experience breadth and discretionary slack

Functional experience reflects the portfolio of managers' multi-functional knowledge. Managers with broad functional experience tend to interpret strategic stimuli from a broad spectrum of perspectives and are more capable of synthesising contradictory information and conducting multiple tasks with various orientations. This fundamental advantage of managers' broad functional experience is associated with their cognitive variety and flexibility. This ability needs a favourable situation for its display and will be inactive if the condition is absent (Tett and Burnett, 2003). Experimenting with different options is costly, in terms of both organisational physical expenditure and individuals' time and energy. Consequently, the shortage of available resources mitigates the opportunities for conducting ambidextrous activities. In summary, low levels of discretionary slack inhibit the behavioural expression of managers' cognitive variety and flexibility, while high levels of discretionary slack promote the demonstration of such ability – managers' ambidexterity in this case. It suggests the following hypothesis:

- H4. Discretionary slack moderates the relationship between functional experience breadth and managers' ambidexterity, such that the relationship is strengthened as discretionary slack increases and weakened as discretionary slack decreases.

Methods

Sample and data

Based on the state of prior theory and this study's research question, we adopted a quantitative approach using a combination of survey and archival data.

Initially, 592 managers participating in executive education and master of business administration (MBA) programmes conducted by a large European public university were identified. These programmes focus on general management/leadership development. The managers come from different organisations, hold various backgrounds and sit in different hierarchical positions in their firms. [Hornsby et al. \(2009\)](#) adopted similar approach for recruiting respondents and pointed out that it is an appropriate means when the sample demonstrates a large range of diversity in terms of their industries, companies, hierarchical levels and so on, albeit considering its convenience nature. It is also a good opportunity to guarantee coverage and higher response rate.

Invitation emails were sent to these 592 potential respondents, explaining the eligibility to participate and inviting their participation. In total, 454 agreed to participate. Surveys were administered either electronically or physically to interested participants and a copy of their most recent *curriculum vitae* (CV) was also requested. In total, 380 completed surveys, and CVs were received after two waves of reminder communications, corresponding to a response rate of 64%. This response rate is higher than most of the cases in management research, but similar to the studies that used executive education students as respondents, such as [Hornsby et al. \(2002\)](#) with 80% and [Dragoni et al. \(2009\)](#) with 77%. We then removed 67 respondents who identified themselves as having no managerial responsibilities. Another eight cases were further excluded due to missing data issues. This results in a final sample of 305 for analysis, with an effective response rate as 52%. On average, the managers are 37.7 years old (s.d. = 7.1) and employed in their organisation for 5.4 years (s.d. = 5.4) and in their industry for 9.4 years (s.d. = 7.6).

Measurement of constructs

The measure of *managerial ambidexterity* was developed and validated by [Mom et al. \(2007\)](#), [Mom et al. \(2009\)](#) and [Kauppila and Tempelaar \(2016\)](#). A few minor modifications were made after the pre-test to improve understanding and comprehension for respondents. In this scale, managers are asked to evaluate the extent to which they routinely engaged in each of 14 kinds of activities in the past year (1 = not at all, 7 = to a great extent). Items for exploration and exploitation were well balanced in terms of the item order. There were seven items related to exploration ($\alpha = 0.74$) and seven items related to exploitation ($\alpha = 0.75$). In keeping with prior studies ([He and Wong, 2004](#); [Mom et al., 2009](#)), managers' ambidexterity score was calculated as a multiplicative interaction of their exploitation and exploration scores.

The five-item measure of *learning goal orientation* was developed by [VandeWalle \(1997\)](#). It has been subsequently widely adopted by researchers ([Hirst et al., 2009, 2011](#); [Seijts et al., 2004](#); [Dragoni and Kuenzi, 2012](#); [Matsuo, 2020](#)). Managers were asked to indicate their levels of agreement with each of the five statements (1 = strongly disagree, 7 = strongly agree). The coefficient alpha for this scale is 0.76.

Functional experience breadth was computed based on the respondents' CV. Following the procedure recommended by [Bunderson \(2003\)](#) and [de Vries et al. \(2013\)](#), we first recorded the number of years each manager worked in each of ten functional areas, such as Sales/Marketing, R&D, Distribution/Logistics and so on. Secondly, we computed the value for functional background breadth as $1 - \sum_{i=1}^k p_i^2$, where p_i is the percentage of a manager's total years of experience spent in the i th functional area of the k functional areas examined. This resulted in an overall score for a managers' functional experience breadth, ranging from 0 (i.e.

all work experience accumulated in a single functional domain) to a maximum of 0.9 (calculated by $(k-1)/k$, according to Harrison and Klein (2007), meaning total work experience evenly distributed across all ten domains). The mean of functional experience breadth based on the sample is 0.37 (s.d. = 0.25), ranging from 0 to 0.8.

The four-item measure of *discretionary slack* we used was developed by Simsek *et al.* (2007). Managers were asked to assess to what extent (1 = not at all, 7 = to a great extent) did their firm hold/possess the following levels of resources, such as “plentiful resources to produce its products and/or services”, “abundant resources for training and rewarding employees to actively think about changes or new business problems”. The coefficient alpha for the scale is 0.83.

A confirmatory factor analysis (CFA) of all of our measures suggested acceptable model fit in all cases. We employed six control variables from individual, organisational and environmental levels: manager’s age, tenure in current organisation, performance goal orientation, organisational size, organisation context and environmental dynamism.

Analysis and results

Person product–moment correlation coefficients (r) between every pair of key variables in this study are computed and summarised in Table 1. Because correlations between study variables were all below 0.4, and all variance inflation factors were less than 2.0 (cut-off value is suggested as 10.0 by Kline (2011)), our analyses are unlikely to be biased by multicollinearity.

We tested our hypotheses using hierarchical linear regression. Results were summarised in Table 2. Model 1 includes all control variables; Model 2 includes the main effects of the two individual difference variables: learning goal orientation and functional experience breadth; Model 3 includes the main effect of our moderator, discretionary slack; and Model 4 includes the cross-product interactions of discretionary slack and the two individual difference variables. We standardised all variables prior to creating the interaction terms.

As shown in Table 2 (Model 2), the first hypothesis, indicating a positive relationship between leaning goal orientation and managers’ ambidexterity, is supported based on model 2 ($\beta = 0.23, p < 0.01$). The second hypothesis, which predicts a positive association between functional experience breadth and managers’ ambidexterity, is not supported ($\beta = -0.04, p = \text{ns}$).

The moderating effect of discretionary slack is shown in Model 4. Hypothesis 3, predicting that discretionary slack would positively moderate the association between learning goal orientation and managers’ ambidexterity, is supported ($\beta = 0.10, p < 0.05$). Hypothesis 4, predicting that discretionary slack would positively moderate the association between functional experience breadth and managers’ ambidexterity, is also supported ($\beta = 0.14, p < 0.01$). To further explore the moderating effects, we plot the interactions following the procedure outlined by Aiken and West (1991) and Dawson (2014). Figure 1 indicates that the relationship between learning goal orientation and managerial ambidexterity is stronger when discretionary slack is high (simple slope test: $t = 4.42, p < 0.01$) than when it is low ($t = 4.74, \text{ns}$). Figure 2 shows that functional experience breadth is negatively related with managers’ ambidexterity when discretionary slack is low (simple slope test: $t = -2.44, p < 0.05$); and functional experience breadth is positively related with managers’ ambidexterity when discretionary slack is high (simple slope test: $t = -1.16, \text{ns}$).

Discussion and conclusion

Implications for theory

Theoretically, the past decade has witnessed a burgeoning interest in ambidexterity. While much of the focus of this area has been on the drivers of ambidexterity at the organisational

Table 1.
Descriptive statistics,
reliability coefficients
and correlations

	Mean	Std. deviation	1	2	3	4	5	6	7	8	9	10
1. Ambidexterity	25.33	6.34	-									
2. Learning goal orientation	6.04	0.64	0.24**	0.76								
3. Functional experience breadth	0.37	0.25	0.01	0.07	-							
4. Discretionary slack	3.84	1.35	0.20**	0.02	-0.09	0.83						
5. Age	37.67	7.14	-0.04	-0.01	0.03	-0.04	-					
6. Organisation tenure ^a	0.53	0.43	-0.04	-0.08	-0.01	-0.13	0.37**	-				
7. Performance goal orientation	3.94	0.88	0.04	-0.18**	-0.07	0.12*	-0.19**	-0.16*	0.74			
8. Organisation size ^a	3.30	1.12	0.08	0.06	-0.09	0.37**	0.12*	0.05	0.03	-		
9. Organisation context	4.68	1.04	0.19**	0.06	0.03	0.38**	-0.05	-0.20**	0.09	0.11	0.92	
10. Environmental dynamism	4.89	1.34	0.30**	0.07	0.13*	0.24**	0.02	-0.15**	0.03	0.12**	0.30**	0.90

Note(s): *N* = 305
 ** Correlation is significant at the 0.01 level (two-tailed) * Correlation is significant at the 0.05 level (two-tailed)
 Alpha reliabilities are in italic on the diagonal
^aLogarithm of the original

	Model 1	Model 2	Model 3	Model 4
<i>Step 1: control variables</i>				
Age	-0.05	-0.05	-0.04	-0.06
Tenure in firm (Lg)	0.04	0.06	0.07	0.08
Performance goal orientation	0.01	0.05	0.05	0.05
Organisational size (Lg)	0.03	0.02	-0.02	0.00
Organisational context	0.11†	0.10†	0.07	0.09
Environmental dynamism	0.27***	0.27***	0.26***	0.27***
<i>Step 2: main effect variables</i>				
Learning goal orientation		0.23***	0.23***	0.23***
Functional experience breadth		-0.04	-0.03	-0.04
<i>Step 3: moderator variable</i>				
Discretionary slack			0.11†	0.10
<i>Step 4: cross-product variable</i>				
Discretionary slack * learning goal orientation				0.10**
Discretionary slack * functional experience breadth				0.14***
R ²	0.11	0.16	0.17	0.20
F	6.00***	6.98***	6.62***	6.81***
ΔR ²		0.05	0.01	0.04
ΔF		8.94***	3.33†	6.53***
Note(s): N = 305 ***p < 0.001 **p < 0.01 *p < 0.05 †p < 0.1				

Table 2. Results of regression analysis for managerial ambidexterity

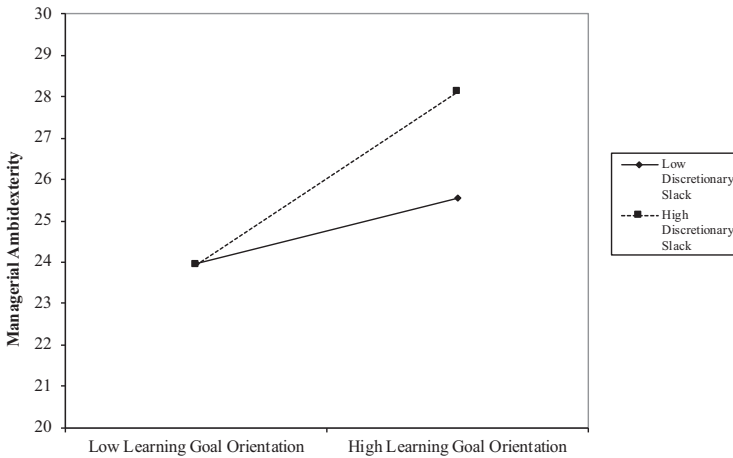
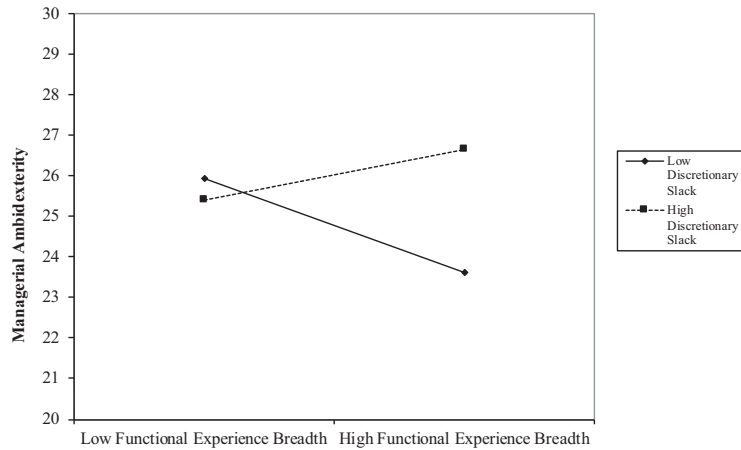


Figure 1. Plot between learning goal orientation and discretionary slack on managerial ambidexterity

level, the requirement for managers and employees throughout the firm to be ambidextrous is increasingly recognised (Gibson and Birkinshaw, 2004). Over-emphasis on the macro level of ambidexterity has left the relevant literature with an incomplete understanding of how individuals within organisations can address the competing demands of exploration and exploitation (Kauppila and Tempelaar, 2016). Contrary to conventional wisdom which believes managerial ambidexterity is largely shaped by organisational design, such as structural separation or contextual integration, recent studies have found that managers play a more central, proactive and strategic roles by adopting various individual configurational

Figure 2.
Plot between
functional experience
breadth and
discretionary slack on
managerial
ambidexterity



practices (Zimmermann *et al.*, 2015, 2018). Our study follows the recent research that investigates individual-level ambidexterity (Papachroni and Heracleous, 2020; Mom *et al.*, 2019; Zimmermann *et al.*, 2018). Specifically, our contributions are twofold:

Firstly, we respond to calls for the development of the ambidexterity literature at the individual level of analysis (Raisch *et al.*, 2009). Guided by individual differences literature, this study systematically investigated fundamental individual difference factors by combining both individual traits and skills in an integrated framework to explain managers' motives (will do) and abilities (can do) in facilitating ambidextrous behaviours. In particular, we theorised and found that managers' learning goal orientation is positively associated with the extent to which they engaged in ambidexterity. This finding extends our current understanding of individual factors, such as self-efficacy (Kauppila and Tempelaar, 2016), that shape managers' ambidexterity. Contrary to our predictions, the functional experience breadth of managers is not significantly associated with their ambidextrous behaviour. There are two alternative explanations we can offer: First, managers may only use their cognitive complexity in certain situations and may keep it inactive in other contexts. This cognitive skill needs a relevant situation to be activated for its behavioural expression (Tett and Burnett, 2003). Our findings on the moderating effect of discretionary slack would support this contention. Moreover, the results of this study illustrate a different perspective to existing literature that suggests that cognitive diversity is a prerequisite for ambidextrous leaders (Smith and Tushman, 2005), signalling that there might be alternative cognitive solutions which work better for shaping managers' ambidexterity, such as single cognitively sophisticated solutions (Eisenhardt *et al.*, 2010).

Secondly, scholars have appealed for more multi-level theorising as an important research agenda in ambidexterity research (Raisch and Birkinshaw, 2008; Simsek, 2009; Wooldridge *et al.*, 2008). Understanding how higher-level (organisational level) contextual factors moderate the relationships between individual level antecedents, behaviour and performance is proposed as one important future direction (Fourne *et al.*, 2012). This paper applies a people-situation interaction approach (Endler and Magnusson, 1976; Pervin, 1978; Schneider, 1983; Lewin, 1951) and finds that discretionary slack serves as an important moderator that enhances the relationship between managers' individual differences factors and ambidexterity: (1) when there is a higher level of discretionary slack, it enhances the positive effect of learning goal orientation on managerial ambidexterity; (2) for functional

experience breadth, it can only enhance managerial ambidexterity when there is a higher level of discretionary slack. This reflects the true logic of trait/ability activation theory, signalling the activating mechanism that discretionary slack plays. Our theorisation and empirical findings regarding people–situation moderation effects respond directly to this research call and validate the assumption that individuals’ ambidextrous behaviours are stimulated from both personal characteristics and the organisational context (Raisch *et al.*, 2009).

Implications for practice

Firstly, managers in practice are struggling to be ambidextrous. While there are organisational factors from a design perspective that can potentially support their managers to excel on this task, managers are fundamentally different in predisposing themselves to be ambidextrous. This sheds light on the importance of management selection and development: learning goal-oriented managers are in a better position to deal with ambidextrous challenges. Organisations that want their managers to be more ambidextrous may start by recruiting candidates who are equipped with a strong learning goal orientation. In addition, such a learning orientation can be encouraged and developed. One potential source of development is to ensure that managers have specific learning goals in addition to their performance and behavioural goals (Latham *et al.*, 2016). While this study did not observe a main effect of the benefit of functional diversity on managerial ambidexterity, the interaction effect with discretionary slack was significant. So, in situations where discretionary slack is high, selection of managers with extensive functional experience breadth may facilitate managerial ambidexterity.

Secondly, this study witnessed the substantial effects of discretionary slack on managers’ ambidexterity. While managers are equipped with essential motive and skills to be ambidextrous, these tendencies are largely activated (or constrained) by the presence (or absence) of discretionary slack. Thus organisations that expect their managers to be active in ambidexterity should provide appropriate level of discretionary slack, such as spare time and free resources. Google and 3M’s “20% policies”, which allow their employees to spend 20% of their time working on projects that may or may not be related to their traditional role, is a good example. Such slack encourages experimentation, enhances networking across organisational boundaries and improves motivation.

Limitations and future research

There are several limitations of this study that might inform future research directions. First, although this study relies on archival data for calculating managers’ functional experience breadth, other key constructs are measured by self-report. Colbert *et al.* (2012) believed that the relationship between personality and leadership may be underestimated when using self-ratings of personality alone and recommended the adoption of both self and observer ratings for personality variables to explain more variance in leadership. Thus, this study encourages future studies to collect multisource data on key constructs that will strengthen the confidence of the findings reported in this study. Second, this study only assesses the links between predictors and managers’ ambidexterity. Although managers’ ambidextrous behaviour is well recognised as a key for organisational success. It is unclear whether such behaviour is related to managers’ personal performance, such as job performance and career success. There has been slow progress in the literature examining this question, with few exceptions (Kobarg *et al.*, 2017; Mom *et al.*, 2015). We suggest future research in this area to take this into consideration. Third, this study takes a people–situation approach to look at how the link between individual difference and managerial ambidexterity varies across different levels of discretionary slack. However, the complexity between individual difference

and managerial ambidexterity could be better examined by incorporating various multiplicative and curvilinear relationships among various individual factors (Zaccaro, 2007). A recent publication also suggested that there are potential interactions, complementarities and conflicts among individual factors in shaping manager' strategic contribution (Wang *et al.*, 2017). Thus future research is needed to discover more on these nuanced interactions.

References

- Adler, P.S., Goldofstas, B. and Levine, D.I. (1999), "Flexibility versus efficiency? A case study of model changeovers in the Toyota production system", *Organization Science*, Vol. 10, pp. 43-68.
- Ahearn, K.K., Ferris, G.R., Hochwarter, W.A., Douglas, C. and Ammeter, A.P. (2004), "Leader political skill and team performance", *Journal of Management*, Vol. 30, pp. 309-327.
- Aiken, L.S. and West, S.G. (1991), *Multiple Regression: Testing and Interpreting Interactions*, Sage, London.
- Barney, J. and Felin, T. (2013), "What are microfoundations?", *Academy of Management Perspectives*, Vol. 27, pp. 138-155.
- Bidmon, C.M. and Boe-Lillegraven, S. (in press), "Now, switch! Individuals' responses to imposed switches between exploration and exploitation", *Long Range Planning*.
- Bourgeois, L.J.I. (1981), "On the measurement of organizational slack", *Academy of Management Review*, Vol. 6, pp. 29-39.
- Bunderson, J.S. (2003), "Team member functional background and involvement in management teams: direct effects and the moderating role of power centralization", *Academy of Management Journal*, Vol. 46, pp. 458-474.
- Burke, L.A. and Steensma, H.K. (1998), "Toward a model for relating executive career experiences and firm performance", *Journal of Managerial Issues*, Vol. 10, pp. 86-102.
- Button, S.B., Mathieu, J.E. and Zajac, D.M. (1996), "Goal orientation in organizational research: a conceptual and empirical foundation", *Organizational Behavior and Human Decision Processes*, Vol. 67, pp. 26-48.
- Colbert, A.E., Judge, T.A., Choi, D. and Wang, G. (2012), "Assessing the trait theory of leadership using self and observer ratings of personality: the mediating role of contributions to group success", *The Leadership Quarterly*, Vol. 23, pp. 670-685.
- Cyert, R.M. and March, J.G. (1963), *A Behavioral Theory of the Firm*, Prentice Hall, Englewood Cliffs, NJ.
- Dawson, J.F. (2014), "Moderation in management research: what, why, when and how", *Journal of Business and Psychology*, Vol. 29, pp. 1-19.
- de Vries, T.A., Walter, F., van der Vegt, G.S. and Essens, P.J.M.D. (2013), "Antecedents of individuals' interteam coordination: broad functional experiences as a mixed blessing", *Academy of Management Journal*, Vol. 57, pp. 1334-1359.
- Dearborn, D.C. and Simon, H.A. (1958), "Selective perception: a note on the departmental identifications of executives", *Sociometry*, Vol. 21, pp. 140-144.
- Dragoni, L. and Kuenzi, M. (2012), "Better understanding work unit goal orientation: its emergence and impact under different types of work unit structure", *Journal of Applied Psychology*, Vol. 97, pp. 1032-1048.
- Dragoni, L., Tesluk, P.E., Russell, J.E.A. and Oh, I.-S. (2009), "Understanding managerial development: integrating developmental assignments, learning orientation, and access to developmental opportunities in predicting managerial competencies", *Academy of Management Journal*, Vol. 52, pp. 731-743.

- Dweck, C.S. (1986), "Motivational processes affecting learning", *American Psychologist*, Vol. 41, pp. 1040-1048.
- Dweck, C.S. and Leggett, E.L. (1988), "A social-cognitive approach to motivation and personality", *Psychological Review*, Vol. 95, pp. 256-273.
- Eisenhardt, K.M., Furr, N.R. and Bingham, C.B. (2010), "Microfoundations of performance: balancing efficiency and flexibility in dynamic environments", *Organization Science*, Vol. 21, pp. 1263-1273.
- Endler, N.S. and Magnusson, D. (1976), "Toward an interactional psychology of personality", *Psychological Bulletin*, Vol. 83, pp. 956-974.
- Felin, T. and Foss, N.J. (2005), "Strategic organization: a field in search of micro-foundations", *Strategic Organization*, Vol. 3, pp. 441-455.
- Felin, T. and Hesterley, W.S. (2007), "The knowledge-based view, nested heterogeneity, and new value creation: philosophical considerations on the locus of knowledge", *Academy of Management Review*, Vol. 32, pp. 195-218.
- Foss, N.J. (2010), "Why micro-foundations for resource-based theory are needed and what they may look like", *Journal of Management*, Vol. 37, pp. 1413-1428.
- Fourne, S., Jansen, J.J.P., Mom, T. and Magala, S. (2012). Reconciling and mastering middle managers' role conflicts. *72nd Annual Meeting of the Academy of Management*. Boston, Massachusetts.
- Funder, D.C. (2012), *The Personality Puzzle*, W. W. Norton & Company, New York.
- Gibson, C.B. and Birkinshaw, J. (2004), "The antecedents, consequences, and mediating role of organizational ambidexterity", *Academy of Management Journal*, Vol. 47, pp. 209-226.
- Gupta, A.K., Smith, K.G. and Shalley, C.E. (2006), "The interplay between exploration and exploitation", *Academy of Management Journal*, Vol. 49, pp. 693-706.
- Hambrick, D.C. and Finkelstein, S. (1987), "Managerial discretion: a bridge between polar views on organizations", in Cummings, L.L. and Staw, M. (Eds), *Research in Organizational Behavior*, JAI Press, Greenwich.
- Harrison, D.A. and Klein, K.J. (2007), "What's the difference? Diversity constructs as separation, variety, or disparity in organizations", *Academy of Management Review*, Vol. 32, pp. 1199-1228.
- He, Z.-L. and Wong, P.-K. (2004), "Exploration vs. exploitation: an empirical test of the ambidexterity hypothesis", *Organization Science*, Vol. 15, pp. 481-494.
- Hirst, G., van Knippenberg, D. and Zhou, J. (2009), "A cross-level perspective on employee creativity: goal orientation, team learning behavior, and individual creativity", *Academy of Management Journal*, Vol. 52, pp. 280-293.
- Hirst, G., Knippenberg, D.v., Chen, C.-H. and Sacramento, C.A. (2011), "How does bureaucracy impact individual creativity? A cross-level investigation of team contextual influences on goal orientation-creativity relationships", *Academy of Management Journal*, Vol. 54, pp. 624-641.
- Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002), "Middle managers' perception of the internal environment for corporate entrepreneurship: assessing a measurement scale", *Journal of Business Venturing*, Vol. 17, pp. 253-273.
- Hornsby, J.S., Kuratko, D.F., Shepherd, D.A. and Bott, J.P. (2009), "Managers' corporate entrepreneurial actions: examining perception and position", *Journal of Business Venturing*, Vol. 24, pp. 236-247.
- Jansen, J.J.P., Tempelaar, M.P., van den Bosch, F.A.J. and Volberda, H.W. (2009), "Structural differentiation and ambidexterity: the mediating role of integration mechanisms", *Organization Science*, Vol. 20, pp. 797-811.
- Junni, P., Sarala, R., Taras, V. and Tarba, S. (2013), "Organizational ambidexterity and performance: a meta-analysis", *Academy of Management Perspectives*, Vol. 27, pp. 299-312.

- Kacmar, K.M., Collins, B.J., Harris, K.J. and Judge, T.A. (2009), "Core self-evaluations and job performance: the role of the perceived work environment", *Journal of Applied Psychology*, Vol. 94, pp. 1572-1580.
- Kauppila, O.-P. and Tempelaar, M.P. (2016), "The social-cognitive underpinnings of employees' ambidextrous behaviour and the supportive role of group managers' leadership", *Journal of Management Studies*, Vol. 53, pp. 1019-1044.
- Kline, R.B. (2011), *Principles and Practice of Structural Equation Modeling*, The Guilford Press, New York.
- Kobarg, S., Wollersheim, J., Welpel, I.M. and Spörrle, M. (2017), "Individual ambidexterity and performance in the public sector: a multilevel analysis", *International Public Management Journal*, Vol. 20, pp. 226-260.
- Latham, G., Seijts, G. and Slocum, J. (2016), "The goal setting and goal orientation labyrinth: effective ways for increasing employee performance", *Organizational Dynamics*, Vol. 45, pp. 271-277.
- Laureiro-Martínez, D., Brusoni, S., Canessa, N. and Zollo, M. (2015), "Understanding the exploration-exploitation dilemma: an fmri study of attention control and decision-making performance", *Strategic Management Journal*, Vol. 36, pp. 319-338.
- Lee, S. and Meyer-Doyle, P. (2017), "How performance incentives shape individual exploration and exploitation: evidence from micro-data", *Organization Science*, Vol. 28, pp. 19-38.
- Lewin, K. (1951), *Field Theory in Social Science*, Harper & Row, New York.
- Lewis, M.W. (2000), "Exploring paradox: toward a more comprehensive guide", *Academy of Management Review*, Vol. 25, pp. 760-776.
- Lewis, M.W., Welsh, M.A., Dehler, G.E. and Green, S.G. (2002), "Product development tensions: exploring contrasting styles of project management", *Academy of Management Journal*, Vol. 45, pp. 546-564.
- Lubatkin, M.H., Simsek, Z., Ling, Y. and Veiga, J.F. (2006), "Ambidexterity and performance in small-to medium-sized firms: the pivotal role of top management team behavioral integration", *Journal of Management*, Vol. 32, pp. 646-672.
- March, J.G. (1991), "Exploration and exploitation in organizational learning", *Organization Science*, Vol. 2, pp. 71-87.
- Matsuo, M. (2020), "Managers' exploration activities and individual unlearning: the mediating role of learning orientation and reflection", *The International Journal of Human Resource Management*, Vol. 31, pp. 638-656.
- Mischel, W. (1968), *Personality and Assessment*, Wiley, New York.
- Mischel, W. (1977), "The interaction of person and situation", in Magnusson, D. and Endler, N.S. (Eds), *Personality at the Crossroads: Current Issues in Interactional Psychology*.
- Mom, T.J.M. (2006), *Managers' Exploration and Exploitation Activities: The Influence of Organizational Factors and Knowledge Inflows*, Doctoral dissertation, Erasmus University, Rotterdam.
- Mom, T.J.M., Van Den Bosch, F.A.J. and Volberda, H.W. (2007), "Investigating managers' exploration and exploitation activities: the influence of top-down, bottom-up, and horizontal knowledge inflows", *Journal of Management Studies*, Vol. 44, pp. 910-931.
- Mom, T.J.M., Van Den Bosch, F.A.J. and Volberda, H.W. (2009), "Understanding variation in managers' ambidexterity: investigating direct and interaction effects of formal structural and personal coordination mechanisms", *Organization Science*, Vol. 20, pp. 812-828.
- Mom, T.J.M., Fourne, S.P.L. and Jansen, J.J.P. (2015), "Managers' work experience, ambidexterity, and performance: the contingency role of the work context", *Human Resource Management*, Vol. 54, pp. S133-S153.
- Mom, T., Chang, Y.-Y., Cholakova, M. and Jansen, J.J.P. (2019), "A multilevel integrated framework of firm hr practices, individual ambidexterity, and organizational ambidexterity", *Journal of Management*, Vol. 45, pp. 3009-3034.

- Mumford, M.D. and Gustafson, S.B. (1988), "Creativity syndrome: integration, application, and innovation", *Psychological Bulletin*, Vol. 103, pp. 27-43.
- O'Reilly, C.A. III and Tushman, M.L. (2011), "Organizational ambidexterity in action: how managers explore and exploit", *California Management Review*, Vol. 53, pp. 5-22.
- Papachroni, A. and Heracleous, L. (2020), "Ambidexterity as practice: individual ambidexterity through paradoxical practices", *Journal of Applied Behavioral Science*, Vol. 56, pp. 143-165.
- Pervin, L.A. (1978), "Theoretical approaches to the analysis of individual-environment interaction", in Pervin, L.A. and Lewis, M. (Eds), *Perspectives in Interactional Psychology*, Plenum, New York.
- Raisch, S. and Birkinshaw, J. (2008), "Organizational ambidexterity: antecedents, outcomes, and moderators", *Journal of Management*, Vol. 34, pp. 375-409.
- Raisch, S., Birkinshaw, J., Probst, G. and Tushman, M.L. (2009), "Organizational ambidexterity: balancing exploitation and exploration for sustained performance", *Organization Science*, Vol. 20, pp. 685-695.
- Rogan, M. and Mors, M.L. (2014), "A network perspective on individual-level ambidexterity in organizations", *Organization Science*, Vol. 25, pp. 1860-1877.
- Rosing, K., Frese, M. and Bausch, A. (2011), "Explaining the heterogeneity of the leadership-innovation relationship: ambidextrous leadership", *The Leadership Quarterly*, Vol. 22, pp. 956-974.
- Schneider, B. (1983), "Interactional psychology and organizational behavior", in Staw, B.M. and Cummings, L.L. (Eds), *Research in Organizational Behavior*, JAI Press, Greenwich, CT.
- Schnellbacher, B., Heidenreich, S. and Wald, A. (2019), "Antecedents and effects of individual ambidexterity – a cross-level investigation of exploration and exploitation activities at the employee level", *European Management Journal*, Vol. 37, pp. 442-454.
- Seijts, G.H., Latham, G.P., Tasa, K. and Latham, B.W. (2004), "Goal setting and goal orientation: an integration of two different yet related literatures", *Academy of Management Journal*, Vol. 47, pp. 227-239.
- Sharfman, M.P., Wolf, G., Chase, R.B. and Tansik, D.A. (1988), "Antecedents of organizational slack", *Academy of Management Review*, Vol. 13, pp. 601-614.
- Sharma, S. (2000), "Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy", *Academy of Management Journal*, Vol. 43, pp. 681-697.
- Sheremata, W.A. (2000), "Centrifugal and centripetal forces in radical new product development under time pressure", *Academy of Management Review*, Vol. 25, pp. 389-408.
- Simsek, Z. (2009), "Organizational ambidexterity: towards a multilevel understanding", *Journal of Management Studies*, Vol. 46, pp. 597-624.
- Simsek, Z., Veiga, J.F. and Lubatkin, M.H. (2007), "The impact of managerial environmental perceptions on corporate entrepreneurship: towards understanding discretionary slack's pivotal role", *Journal of Management Studies*, Vol. 44, pp. 1398-1424.
- Smith, W.K. and Tushman, M.L. (2005), "Managing strategic contradictions: a top management model for managing innovation streams", *Organization Science*, Vol. 16, pp. 522-536.
- Sok, K.M., Sok, P. and De Luca, L.M. (2016), "The effect of 'can do' and 'reason to' motivations on service-sales ambidexterity", *Industrial Marketing Management*, Vol. 55, pp. 144-155.
- Suedfeld, P. and Bluck, S. (1993), "Changes in integrative complexity accompanying significant life events: historical evidence", *Journal of Personality and Social Psychology*, Vol. 64, pp. 124-130.
- Taylor, A. and Helfat, C.E. (2009), "Organizational linkages for surviving technological change: complementary assets, middle management, and ambidexterity", *Organization Science*, Vol. 20, pp. 718-739.
- Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and micro-foundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28, pp. 1319-1350.

-
- Tempelaar, M.P. and Rosenkranz, N.A. (2019), "Switching hats: the effect of role transition on individual ambidexterity", *Journal of Management*, Vol. 45, pp. 1517-1539.
- Tett, R.P. and Burnett, D.D. (2003), "A personality trait-based interactionist model of job performance", *Journal of Applied Psychology*, Vol. 88, pp. 500-517.
- Tett, R.P. and Guterman, H.A. (2000), "Situation trait relevance, trait expression, and cross-situational consistency: testing a principle of trait activation", *Journal of Research in Personality*, Vol. 34, pp. 397-423.
- Tushman, M.L. and O'Reilly, C.A. III (1996), "Ambidextrous organizations: managing evolutionary and revolutionary change", *California Management Review*, Vol. 38, pp. 8-30.
- VandeWalle, D. (1997), "Development and validation of a work domain goal orientation instrument", *Educational and Psychological Measurement*, Vol. 57, pp. 995-1015.
- VandeWalle, D., Cron, W.L. and Slocum, J.W. (2001), "The role of goal orientation following performance feedback", *Journal of Applied Psychology*, Vol. 86, pp. 629-640.
- Wang, R., Gibbons, P.T. and Heavey, C. (2017), "A conceptual framework of middle managers' strategic role flexibility", in Floyd, S.W. and Wooldridge, B. (Eds), *Handbook of Middle Management Strategy Process Research*, Edward Elgar, Cheltenham.
- Wang, S.L., Luo, Y., Maksimov, V., Sun, J. and Celly, N. (2018), "Achieving temporal ambidexterity in new ventures", *Journal of Management Studies*, Vol. 56, pp. 788-822.
- Wooldridge, B., Schmid, T. and Floyd, S.W. (2008), "The middle management perspective on strategy process: contributions, synthesis, and future research", *Journal of Management*, Vol. 34, pp. 1190-1221.
- Yukl, G. (2012), *Leadership in Organizations*, Pearson, Upper Saddle River, NJ.
- Zaccaro, S.J. (2007), "Trait-based perspectives of leadership", *American Psychologist*, Vol. 62, pp. 6-16.
- Zimmermann, A., Raisch, S. and Birkinshaw, J. (2015), "How is ambidexterity initiated? The emergent charter definition process", *Organization Science*, Vol. 26, pp. 1119-1139.
- Zimmermann, A., Raisch, S. and Cardinal, L.B. (2018), "Managing persistent tensions on the frontline: a configurational perspective on ambidexterity", *Journal of Management Studies*, Vol. 55, pp. 739-769.

Corresponding author

Ruifang Wang can be contacted at: Ruifang.Wang@mu.ie