



Developing learning ambidexterity and job performance: training and educational implications across the cultural divide

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Abstract

Learning ambidexterity helps make sense of information for effectively facilitating job performance. Drawing upon social cognitive theory and ambidexterity theory, this study proposes a research model that shows how learning ambidexterity and job performance are developed. In the model, job performance is indirectly influenced by benevolent leadership and work passion via learning ambidexterity that includes exploration and exploitation (i.e., two mediators). At the same time, the cultural value of uncertainty avoidance hypothetically moderates the effects of benevolent leadership and work passion on the mediators. An anonymous survey on workers was conducted in Taiwan and Hong Kong across various industry categories including retailing services, beauty salon services, real estate services, hotel services, and tourism services. Empirical testing by structural equation modeling and moderated regression analysis was performed to verify the hypotheses of this study. Finally, this study presents research implications about training and education for employees.

Keywords Training and education · Learning ambidexterity · Benevolent leadership · Passion · Job performance

Mathematics Subject Classification 28-02

1 Introduction

In workplace environments, learning ambidexterity helps employees make sense of information and use cognitive judgment to do their job, consequently facilitating job performance (Gibson and Birkinshaw 2004). Learning ambidexterity was emerged

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from ambidexterity theory, which refers to individuals' capability to simultaneously exploit and explore (Alizadeh and Jetter 2019). Ambidexterity theory proposes that employees often engage in conflicting learning activities (i.e., exploitation and exploration) (Papachroni and Heracleous 2020), which enable the employees to successfully cope with workplace tensions and challenges (Luger et al. 2018).

Learning ambidexterity is defined as employees' learning ability to balance and pursue exploration and exploitation strategies simultaneously (Lee and Kim 2021). While exploration represents exploring, studying, and discovering new solutions (or novel approaches) to do things, exploitation means making good use of existing knowledge and familiar practices to carry out job activities. A challenge behind learning ambidexterity is how exploration and exploitation that may seem somewhat contradictory to each other can be actually reconciled to facilitate positive job outcomes (Papachroni and Heracleous 2020; Raisch and Birkinshaw 2008). Therefore, learning ambidexterity can be conceptualized as the capability to balance two respective learning abilities of exploration and exploitation, ultimately boosting job performance. Given their respective influence on job performance, exploration and exploitation are both used alternatively by employees to respond to different work-related demands or circumstances. Studying learning ambidexterity is important because its process is crucial for simultaneously generating new knowledge and using existing skillset that together influence job performance in the workplace.

Although it is good for employees to simultaneously exploit their professional skills and traditional wisdom (i.e., exploitation) and develop new skills and novel knowledge in creative ways (i.e., exploration), organizational management often put emphasis on either exploration or exploitation instead of both (Carroll 2012). Whether organizations prefer exploitation or exploration sometimes depends on contingency. For example, exploration is more easily achieved in decentralized units with loose processes and cultures, but exploitation is more easily achieved in centralized units with tight processes and cultures (Benner and Tushman 2003). For that reason, employees may be asked to focus heavily on either exploration (e.g., new technology) or exploitation (e.g., service and operations) in order to improve their job performance (Zhang et al. 2020). Hence, what influences exploration and exploitation simultaneously in order to maximize job performance has been relatively understudied in the literature (Lee and Kim 2021), thus leading to the first research gap to be filled in this study.

The second research gap to be filled relates to the moderating mechanism of uncertainty avoidance from a cultural value perspective. Defined as the cultural extent to which employees avoid unstructured or unsure environments or situations (Seo et al. 2012), uncertainty avoidance is likely to moderate the development process of exploration and exploitation, which both represent different learning strategies based on probabilities and/or conviction (Azadegan and Dooley 2010). Note that this study examines uncertainty avoidance instead of the other dimensions of cultural value because uncertainty avoidance is more influential than other cultural values in explaining cross-cultural behavior in different regions (e.g., Taiwan vs. Hong Kong) (Fung and McKercher 2016). Uncertainty avoidance is highly relevant to learning ambidexterity as it deals with the level of tolerance for ambiguity and uncertainty such as exploration and exploitation (Elango and Pangarkar 2020; Tu

et al. 2020). Hofstede has argued that uncertainty avoidance is more critical than other cultural dimensions in explaining cross-cultural differences (Fung and McKeercher 2016). Nevertheless, the moderating role of uncertainty avoidance in the development process has been rarely examined, which is thus verified in this work as a culturally comparative study by its comparing the formation of learning ambidexterity across Hong Kong and Taiwan.

Based on the above research gaps, this study aims to identify what antecedents drive learning ambidexterity and job performance, and whether uncertainty avoidance moderates the relationships between learning ambidexterity and its predictors. Without answering these questions, our understanding about how learning ambidexterity influences job performance will remain highly limited, and training and educational initiatives directed at achieving effective learning and great job performance will remain unreasonable based on subjective biases or blind faith. Hence, the purpose of this study is to elucidate the relationship between ambidexterity, job performance, their predictors, and moderator (i.e., uncertainty avoidance), which can provide critical implications for learning and training. For an empirical verification, this study conducted an anonymous survey on workers in Taiwan versus Hong Kong across various industry categories including retailing services, beauty salon services, real estate services, hotel services, and tourism services.

2 Theory and research model

A theory that effectively explains how employees' learning is formed to improve job performance is social cognitive theory (Compeau and Higgins 1995). It suggests that employees' learning is the psychosocial consequence of their inner inclination and their external environment (Bandura 1999). In other words, employees' learning is influenced by both internal and external forces (Nurun Nabi and Dip 2017). Development of these two forces has led to close attention being paid to what is derived in abundant research as work passion (i.e., an internal influence) and leadership (i.e., an external influence). While work passion represents powerfully employees' internal feeling toward work activities that they love (Burke et al. 2015), leadership represents strongly external stimulus necessary to awaken employees' learning (O'Reilly and Tushman 2011; Scatolin et al. 2014).

Work passion is accumulated based on social cognitive theory as an underlying foundation through a mental appraisal process (Nimon et al. 2021; Zigarmi et al. 2011). Previous research has found that work passion is a key for learning (Li 2005). At the same time, as externally an environmental factor (Moghimi and Muenjohn 2017), leadership can substantially influence employees in terms of their learning strategies, directions, and goals (Armanious and Padgett 2021). Specifically, an important type of leadership that creates a respectful, supportive, and trusting work environment (Lin et al. 2018) for employees' learning is benevolent leadership. Defined as a leader's individualized and sincere concern for subordinates' needs (Lin et al. 2018), benevolent leadership facilitates the process of a virtuous cycle of encouraging employees to demonstrate desirable learning strategies (e.g., exploration and exploitation) (Isaksen 2017; Wang et al. 2012). Note that benevolent

leadership is studied herein because of two major reasons. First, benevolent leadership is relatively understudied in comparison with such leadership as transformational leadership and transactional leadership that have been widely and repeatedly examined in previous research. Second, the literature has indicated that benevolent leadership influences employees' learning and creativity more strongly than other leadership styles (e.g., Gumusluoglu et al. 2017; Hou et al. 2019; Lin et al. 2018).

Drawing upon social cognitive theory and ambidexterity theory, this study proposes a model (see Fig. 1) to show the development process of job performance. In the model, job performance is influenced by exploration and exploitation (i.e., mediators) that are both then influenced by benevolent leadership and work passion (i.e., antecedents). For that reason, job performance is influenced by benevolent leadership and work passion indirectly through the mediation of exploration and exploitation. At the same time, since exploration is adversely affected by exploitation, the effect of exploitation on exploration is negative. Uncertainty avoidance hypothetically moderates the effects of benevolent leadership and work passion on exploration and exploitation. The literature has suggested that uncertainty avoidance is highly associated with ambiguity and different rule interpretations (Tu et al. 2020) in which work passion and benevolent leadership likely come into play with uncertainty avoidance to jointly strengthen or weaken employees' exploration and exploitation.

Competition in service sector is often driven by the perceived service quality of customers since there are no tangible products involved (Yeo and Li 2014). Given serious competition in Asian regions such as Taiwan and Hong Kong, service workers were often expected to give priority to their work over personal matters in response to customers promptly (Wu et al. 2011). For that reason, service sector has special requirements of learning ambidexterity for effectively dealing with customers (AlMulhim 2020). Such learning ambidexterity dynamics can be derived from service staff's work passion (Luo et al. 2014), and their supervisor's leadership style (Chen and Chen 2014) in order to explain how they value their services and deliver superior service quality.

From a learning perspective, employees need to exert ambidexterity to deal with different tasks simultaneously by exploration and/or exploitation to achieve

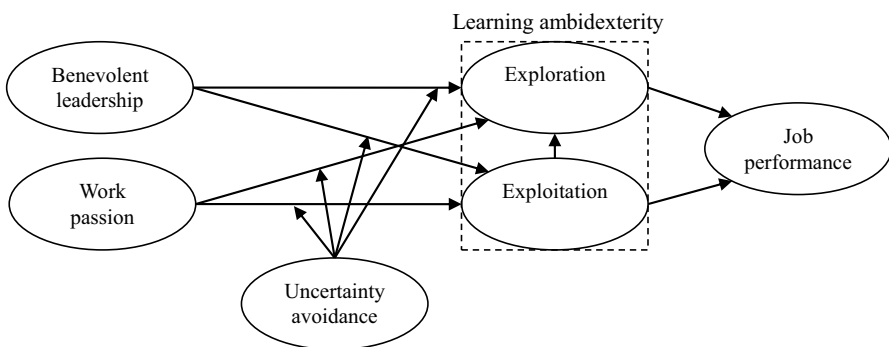


Fig. 1 Research model

job performance (Mom et al. 2019). Exploration relates to employees' learning to experiment with novel alternatives whose results may be uncertain in the beginning whereas exploitation relates to employees' learning to directly adopt or slightly modify existing approaches, technologies, and procedures whose effectiveness is likely shown or predictable (Lee and Kim 2021). Previous research has indicated that job performance is positively influenced by exploration (Keith and Frese 2008) and exploitation (Lee et al. 2019). For example, employees who make good use of exploration for service/product innovation and exploitation for service/product quality enhancement are likely to maximize their job performance (Singh and Agrawal 2017). Meanwhile, there exists somewhat a tradeoff between exploration and exploitation (Zhang et al. 2020), because employees who increase exploitation are often at the expense of exploration due to individuals' limited resources (e.g., time, efforts) or attention (Lee and Kim 2021). The literature has suggested that employees tend to implement exploitation and exploration in asymmetric ways (Lee and Kim 2021). While pursuing exploitation often contributes to short-term results, emphasizing exploration likely contributes to long-term goals but undermines short-term results (Lee and Kim 2021). There exists a conflicting relationship between exploration and exploitation based on the resource scarcity assumption (Wei et al. 2014). Exploitation and exploration are highly incompatible (Luzon and Pasola 2011) because they have to compete for scarce mental and psychological resources (March 1991). Collectively, the first two hypotheses are derived as below.

H1 Exploration and exploitation positively relate to job performance.

H2 Exploitation negatively relates to exploration.

Benevolent leadership makes employees feel safe and comfortable to take necessary actions by either experimenting with new approaches or fine-tuning traditional procedures without excessive worry about potential failures (Hou et al. 2019). In other words, employees under benevolent leadership are likely to gain an enhanced sense of power to do their job with appropriate exploration or exploitation (Dedahanov et al. 2019). The literature has found that benevolent leadership creates environments that are favorable to exploratory innovation (Hou et al. 2019) and non-coercive exploitation (Nie and Lämsä 2018). In other words, benevolent leadership emphasizes individualized concerns for employees and supports their development in the workplace (Zhou et al. 2020), consequently encouraging them to adopt exploitation or exploration whenever applicable. Accordingly, the hypothesis about benevolent leadership is derived as below.

H3 Benevolent leadership positively relates to both exploration and exploitation.

Work passion is defined as a strong affective tendency toward work-related activities in which employees enjoy investing time and energy (Burke et al. 2015). It triggers employees' persistent state of desire to explore creative things and ideas (Chen et al. 2015; Yin et al. 2020), thus facilitating exploration. At the

same time, employees can more confidently exploit their skills and knowledge for performance improvement when they possess an intense and positive interest (i.e., work passion) in assessing and comparing different decision alternatives (De Clercq and Pereira 2020). Previous research has found that employees with stronger work passion have stronger commitment and engagement in practicing their exploitative job skills (Pollack et al. 2020). All in all, employees with strong work passion tend to actively engage in exploring new opportunities (e.g., Salas-Vallina et al. 2020) and also leverage their skilled expertise and prior knowledge to achieve job aims (e.g., Xiao et al. 2020). To sum up, the influence of work passion is hypothesized as below.

H4 Work passion positively relates to both exploration and exploitation.

Defined as the extent of employees' feelings threatened by unpredictable or unclear future situations, uncertainty avoidance creates a cultural environment that triggers employees' sensitivity towards their manager's leadership style when doing their job. Specifically, in the environment of high uncertainty avoidance (e.g., Taiwan), employees who prefer high risk aversion tend to firstly observe their manager if he or she cares about their professional growth and gives them a chance to fix work-related errors (i.e., strong benevolent leadership) (Nabi and Liu 2021). Under such a circumstance, employees supervised by strong benevolent leadership are more willing to be flexible about switching between exploration and exploitation whichever can serve to maximize job performance. Analogously, employees supervised by weak benevolent leaders are sensitively more discouraged from making any decision with exploration or exploitation. They may want to only follow their manager's instructions step by step without taking into account exploration or exploitation. To sum up, given higher uncertainty avoidance, the influence of benevolent leadership on exploration or exploitation is stronger.

In the environment of low uncertainty avoidance (e.g., Hong Kong), employees who prefers high risk-taking are less sensitive to the influence of benevolent leadership on their choice of exploration or exploitation. They are quite conformable in using exploration or exploitation that helps improve job performance because low benevolent leadership (e.g., a lack of individualized concerns by their manager) is somewhat compensated by the environment of low uncertainty avoidance that provides more freedom of doing their job in their own way (Darvish et al. 2012). As a result, given lower uncertainty avoidance, the effect of benevolent leadership on exploration or exploitation is likely weaker, leading to the following hypotheses.

H5 Uncertainty avoidance positively moderates the relationship between benevolent leadership and exploration such that the relationship is stronger among workers under higher uncertainty avoidance (e.g., Taiwan) than those under lower uncertainty avoidance (e.g., Hong Kong).

H6 Uncertainty avoidance positively moderates the relationship between benevolent leadership and exploitation such that the relationship is stronger among workers under higher uncertainty avoidance (e.g., Taiwan) than those under lower uncertainty avoidance (e.g., Hong Kong).

Uncertainty avoidance encourages a cultural thinking of loss aversion (Statman 2016) that deters employees' work passion that is supposed to drive exploration or exploitation strategies. Specifically, given high uncertainty avoidance (e.g., Taiwan) that triggers employees' unwillingness to accept risks or failure (Hofstede 1980), employees' work passion becomes less influential to exploration or exploitation because they tend to prefer the structure of avoiding risks or failure by using, for example, the strategy of conformity (i.e., a lack of autonomy) (Pakdil and Leonard 2017) instead of adopting exploration or exploitation. Accordingly, given higher uncertainty avoidance, the effect of work passion on exploration or exploitation is likely weaker.

On the contrary, low uncertainty avoidance is likely to amplify the positive effect of work passion on exploration or exploitation because employees in the cultural environment of low uncertainty avoidance (e.g., Hong Kong) are comfortable with unknown things (e.g., exploration) and also inclined to control work situations through rules and regulations (e.g., exploitation) (e.g., Statman 2016). Their work passion is greatly leveraged to facilitate diverse strategies such as exploration and exploitation (e.g., Mageau and Vallerand 2007). In other words, employees with stronger work passion tend to be more flexible about changing between exploration and exploitation to maximize job performance. Consequently, given lower uncertainty avoidance, the effect of work passion on exploration or exploitation is likely stronger, leading to the following hypotheses.

H7 Uncertainty avoidance negatively moderates the relationship between work passion and exploration such that the relationship is weaker among workers under higher uncertainty avoidance (e.g., Taiwan) than those under lower uncertainty avoidance (e.g., Hong Kong).

H8 Uncertainty avoidance negatively moderates the relationship between work passion and exploitation such that the relationship is weaker among workers under higher uncertainty avoidance (e.g., Taiwan) than those under lower uncertainty avoidance (e.g., Hong Kong).

3 Methods

3.1 Subjects and procedures

This study conducted empirical examinations using data from workers in service industry across Taiwan and Hong Kong. These workers were considered appropriate sample subjects for this study because they must stay dynamic to deal with

various kinds of service issues at the workplace with exploration and/or exploitation (e.g., Annosi et al. 2021). Researchers obtained the assistance of their alumni who worked as senior managers in service industry in two different economic regions (i.e., Taiwan and Hong Kong) for data collection. Although service sector may share similar characteristics with other industries (Song et al. 2012), the service sector possesses somewhat unique processes (e.g., intangible nature of output, pricing processes, simultaneous participation of customers) (Avlonitis and Indounas 2007), which are thus worth studying herein. The service industry included five categories, such as retailing services, beauty salon services, real estate services, hotel services, and tourism services. In each region, an anonymous survey was conducted across three organizations in each of the five service categories. Therefore, fifteen organizations in Taiwan and another fifteen in Hong Kong were investigated. Survey subjects all participated voluntarily, and they were assured that their responses would be only aggregated for empirical analyses and thus personal private data would not be disclosed.

3.2 Measures

The variables in this study were measured by a questionnaire that consisted of psychometric scales based on its research model. Specifically, the variables were measured using five-point Likert-type items (see “Appendix 1”). Job performance was measured with five items from Soane et al. (2012). Exploration and exploitation were measured with five items and three items respectively from Lee and Kim (2021). Benevolent leadership was measured with eight items from Chen et al. (2014). Work passion was measured with six items from Lin and Chen (2016). Finally, uncertainty avoidance was measured with three items from Jung and Kellaris (2004). Before its actual survey, this study conducted a pilot survey by collecting data from 32 people in Hong Kong and 31 people in Taiwan to verify the quality of the instrument. The data were analyzed with exploratory factor analysis to show the acceptable quality of survey instrument. These research subjects in the pilot survey were excluded from the actual survey of this study.

3.3 Data collection and analyses

This study developed a research design to control organizational differences by surveying the same number of organizations across two regions (i.e., 15 in Taiwan and another 15 in Hong Kong) with the same number of questionnaires to each organization (i.e., as suggested by most managers, this study randomly distributed 13 questionnaires to each organization). Hence, this study distributed 195 questionnaires in Taiwan and another 195 in Hong Kong. A total of 181 usable questionnaires in Taiwan (i.e., the response rate of 92.82) and a total of 186 usable questionnaires in Hong Kong (i.e., the response rate of 95.38%) were collected. In the pooled sample that consists of 367 subjects, 141 were male (38.42%), 83 were the age of 36 or more (22.62%), and 72 had work experience of 6 years or more (19.62%). These characteristics were all controlled in the analyses of this study.

Table 1 Results of confirmatory factor analysis

Construct	Indicators	Standardized loading	AVE	Cronbach's α
Job performance	JP1	0.79 (t=35.49)	0.68	0.92
	JP2	0.82 (t=41.31)		
	JP3	0.83 (t=43.32)		
	JP4	0.87 (t=52.31)		
	JP5	0.80 (t=36.00)		
Exploration	ER1	0.77 (t=28.94)	0.60	0.86
	ER2	0.79 (t=32.09)		
	ER3	0.76 (t=28.24)		
	ER4	0.76 (t=28.35)		
Exploitation	EI1	0.62 (t=15.13)	0.52	0.76
	EI2	0.80 (t=22.96)		
	EI3	0.73 (t=19.67)		
Benevolent leadership	BL1	0.80 (t=38.49)	0.66	0.94
	BL2	0.87 (t=59.34)		
	BL3	0.79 (t=36.29)		
	BL4	0.81 (t=41.61)		
	BL5	0.85 (t=53.35)		
	BL6	0.83 (t=45.66)		
	BL7	0.83 (t=44.86)		
	BL8	0.73 (t=28.06)		
Work passion	PA1	0.72 (t=25.31)	0.6	0.90
	PA2	0.84 (t=45.04)		
	PA3	0.74 (t=27.65)		
	PA4	0.79 (t=34.39)		
	PA5	0.67 (t=21.19)		
	PA6	0.85 (t=47.73)		
Uncertainty avoidance	UA1	0.49 (t=10.56)	0.54	0.74
	UA2	0.82 (t=22.20)		
	UA3	0.82 (t=22.00)		

Goodness-of-fit indices: $\chi^2_{362}=774.69$ (p value < 0.001); NFI=0.89; NNFI=0.93; CFI=0.94; RMR=0.03; RMSEA=0.06

Confirmatory factor analysis (CFA) using the pooled data of workers from Taiwan and Hong Kong was performed. The test results in Table 1 indicated that the figures of NFI, NNFI, and CFI were close to or larger than 0.9. The figures of RMR were smaller than 0.05 whereas the figures of RMSEA were smaller than 0.08. In summary, these results supported that the CFA model matched the empirical data well.

Convergent validity was obtained because (1) significant factor loadings ($p < 0.001$), (2) AVE (average variance extracted) coefficients larger than 0.50, and (3) Cronbach's alpha coefficients larger than 0.70 (see Table 1). Meanwhile,

Table 2 Confidence interval tests for verifying discriminant validity

Construct pair	Estimate	Standard error	Confidence interval
(F1, F2)	0.391	0.051	(0.291: 0.492)
(F1, F3)	0.184	0.060	(0.066: 0.302)
(F1, F4)	0.255	0.053	(0.151: 0.358)
(F1, F5)	0.290	0.053	(0.186: 0.394)
(F1, F6)	0.192	0.059	(0.077: 0.307)
(F2, F3)	0.195	0.062	(0.073: 0.317)
(F2, F4)	0.563	0.042	(0.481: 0.645)
(F2, F5)	0.608	0.040	(0.529: 0.687)
(F2, F6)	0.019	0.063	(-0.104: 0.141)
(F3, F4)	0.284	0.057	(0.173: 0.396)
(F3, F5)	0.401	0.054	(0.293: 0.509)
(F3, F6)	0.280	0.062	(0.156: 0.404)
(F4, F5)	0.473	0.045	(0.385: 0.561)
(F4, F6)	0.098	0.059	(- 0.018: 0.214)
(F5, F6)	-0.077	0.061	(- 0.196: 0.041)

F1 = Job performance; F2 = Exploration; F3 = Exploitation; F4 = Benevolent leadership; F5 = Work passion; F6 = Uncertainty avoidance

discriminant validity was supported by confidence interval tests (see Table 2) because none of confidence interval coefficients covered 1.

3.4 Testing of hypotheses

This study performed structural equation modeling (SEM) to test its first four hypotheses (i.e., H1–H4). To reduce the possibility of unexpected biases, this study included important control variables such as region, sex, age, education, marriage, management position, tenure, and uncertainty avoidance. Table 3

Table 3 Test results of SEM

Hypothesized relationship	Standardized coefficients
Exploration → Job performance	0.36**
Exploitation → Job performance	0.08
Exploitation → Exploration	- 0.13**
Benevolent leadership → Exploration	0.36**
Benevolent leadership → Exploitation	0.08
Work passion → Exploration	0.50**
Work passion → Exploitation	0.39**

** $p < 0.01$

Region, sex, age, education, marriage, management position, tenure, and uncertainty avoidance were all included as control variables in the SEM model

showed statistical results of SEM. First, exploration positively relates to job performance ($\beta=0.36$; $p<0.01$) but exploitation is not related to job performance (thus H1 is partially supported). Second, exploitation negatively relates to exploration ($\beta=-0.13$; $p<0.01$) (thus H2 is supported). Third, benevolent leadership positively relates to exploration ($\beta=0.36$; $p<0.01$) but not to exploitation (thus H3 is partially supported). Fourth, work passion positively relates to exploration ($\beta=0.50$; $p<0.01$) and exploitation ($\beta=0.39$; $p<0.01$) (thus H4 is supported).

Hofstede (2001) has found that Taiwan has stronger uncertainty avoidance (with the score of 69) than Hong Kong (with the score of 29). Nevertheless, it is still necessary to double check if our research investigation about uncertainty avoidance is consistent with the finding by Hofstede (2001). Hence, this study conducts independent sample t-tests to verify the difference between Taiwan and Hong Kong regarding their uncertainty avoidance. Our independent sample t-test shows a significant difference of uncertainty avoidance between the Taiwanese workers and the Hong Kong workers ($t=2.20$, d.f. = 365, $p<0.005$). Specifically, uncertainty avoidance among Taiwanese workers (mean = 3.88) is reported to be significantly larger than that among Hong Kong workers (mean = 3.73). The magnitude of uncertainty avoidance found by this study is completely consistent with the finding by Hofstede (2001).

To examine the moderating role of uncertainty avoidance, this study applies moderated regression analyses to verify the hypothesized moderation (i.e., H5–H8) by including the interactions between uncertainty avoidance and benevolent leadership and between uncertainty avoidance and work passion (see

Table 4 Test results of moderated regression analysis

	Model 1	Model 2
	Exploration	Exploitation
<i>Control variables</i>		
Region	-0.05	0.06
Age	-0.05	0.05
Sex	0.00	0.00
Education	-0.13**	-0.13
Marriage	0.06	-0.07
Management position	-0.17**	-0.01
Tenure	-0.01	-0.01
<i>Antecedents</i>		
Benevolent leadership	-0.39**	0.16
Work passion	0.64**	0.33
<i>Moderator</i>		
Uncertainty avoidance (UA)	-0.26	0.38
<i>Interaction terms</i>		
UA × Benevolent leadership	0.17**	-0.02
UA × Work passion	-0.09*	-0.02
Adj. R-square	0.42	0.17

* $p<0.05$; ** $p<0.01$

Table 5 ULMC analysis

	χ^2	d.f	Model comparisons	
Model 1	774.69	362		
Model 2	635.70	333	Model 1 versus Model 2	$\Delta\chi^2 (29) = 138.99^*$
Model 3	652.17	377	Model 2 versus Model 3	$\Delta\chi^2 (44) = 16.47$

Table 6 Post hoc tests for indirect effects, their differences, and total effects

Parameters	Unstandard- ized estimate	Standard error	t value
A: Benevolent leadership → Exploration → Job performance	0.091**	0.020	4.61
B: Benevolent leadership → Exploitation → Job performance	0.004	0.005	0.84
C: Work passion → Exploration → Job performance	0.139**	0.028	4.97
D: Work passion → Exploitation → Job performance	0.023	0.019	1.23
A vs. B	0.087**	0.021	4.20
C vs. D	0.116**	0.036	3.19
Total effect (A + B + C + D)	0.258**	0.042	6.20

Nationality, sex, age, education, marriage, management position, tenure, and uncertainty avoidance were all included as control variables in the SEM model

Table 4). The results of Model 1 show that uncertainty avoidance positively moderates the relationship between benevolent leadership and exploration (thus H5 is supported) but negatively moderates the relationship between work passion and exploration (thus H7 is supported). At the same time, the results of Model 2 show that uncertainty avoidance does not moderate the relationships between benevolent leadership and exploitation and between work passion and exploitation (thus H6 and H8 are not supported).

This study first conducts post hoc tests to enhance the validity and contributions of this empirical study. First, this study utilized the technique of ULMC (Williams et al. 1989) to verify the potential threat of CMB (common method bias) (see Table 5). Although the significant chi-square difference between Models 1 and 2 might reveal possible common method variances, the insignificant chi-square difference between Models 2 and 3 suggested that our empirical results did not contain common method bias (CMB).

Second, this study conducts the second post hoc test with SEM to demonstrate indirect effects and their differences by comparison (see Table 6). First, the indirect effect of benevolent leadership on job performance via exploration is significant ($\beta = 0.091$; $p < 0.01$). Second, the indirect effect of benevolent leadership on job performance via exploitation is not significant. Third, the indirect effect of work passion on job performance via exploration is significant ($\beta = 0.139$; $p < 0.01$). Fourth, the indirect effect of work passion on job performance via exploitation is not significant. Fifth, the indirect effect of benevolent leadership

on job performance through exploration is significantly larger than the indirect effect through exploitation (i.e., A vs. B) ($\beta=0.087$; $p<0.01$). Sixth, the indirect effect of work passion on job performance through exploration is significantly larger than the indirect effect through exploitation (i.e., C vs. D) ($\beta=0.116$; $p<0.01$). Finally, the total effect is significant ($\beta=0.258$; $p<0.01$).

4 Discussion

This study demonstrates the moderating mechanism of uncertainty avoidance and the mediating mechanism of exploration and exploitation in the development of job performance. This study reconciles the previous argument regarding the equal importance of exploration and exploitation and whether uncertainty avoidance intervenes the influence of benevolent leadership and work passion. Based on its empirical results for hypotheses, this study contributes to the literature by elaborating following insightful implications.

4.1 Theoretical implications

This study offers three theoretical implications in particular. First, this study argues the positive effect of benevolent leadership on exploration, which is analogous with social influence theory that emphasizes leaders' relationship orientation in encouraging subordinates' exploration and idea sharing to a large extent (e.g., Hou 2020). This study finds that benevolent leadership facilitates job performance through exploration (rather than exploitation), which addresses the noticeable calls in organizational antecedents (Jansen et al. 2005) for an in-depth understanding of exploration (e.g., expressing concerns, thoughts, and opinions to explore how work can be improved) through which benevolent leadership boosts job performance (Dedahanov et al. 2016).

Second, the positive effect of work passion on both exploration and exploitation in this study is consistent with the previous research based on self-determination theory (Ma et al. 2019), which justifies work passion as a positive, enduring, and internalized state of contentment that motivates workers' ambidexterity. This study integrates the traditional wisdom of work passion into new theoretical territory—the mediating mechanism of exploration and exploitation based on social learning theory—and thus complements previous research that focuses on the direct effect of work passion on job outcomes such as job embeddedness (Teng et al. 2021), sales performance (Tran and Nguyen 2020), and service performance (Teng 2019).

Third, this study finds that investigating learning ambidexterity deepens our understanding about the connotation of exploration and exploitation. Based on its findings, this study argues that service workers should allocate more resources to support exploration so as to achieve job performance effectively. Specifically, in service sector where a long term relationship with customers is desirable, service workers should attach resources to such long-term striving as exploration instead of short-term attempts (e.g., exploitation) (Ma et al. 2020). This study contributes to

reconcile the debate on the association between exploration and exploitation (Jansen et al. 2005; O'Reilly and Tushman 2011) by identifying service sector as a key contingency that is often complementary for exploration whereas misfits exploitation.

Fourth, the moderating role of uncertainty avoidance in this study provides additional support to relevant research based on the theory of planned behavior (Wolff et al. 2011) that argues uncertainty avoidance as a situational specific and attitudinal variable which may intervene workers' choices about exploration or exploitation. According to this study's finding, uncertainty avoidance has theoretically a double character that strengthens the influence of benevolent leadership on exploration but weakens the influence of work passion on exploration.

4.2 Practical implications

This study offers critical implications for learning and training practices that facilitate job performance. To begin with, the positive effect of benevolent leadership on exploration suggests managers learn to express sincere concerns for employees' workplace incidents and life events when they expect to inspire employees to engage in activities characterized by research, discovery, experimentation, flexibility, variation, and creativity (Zhang et al. 2012). Such concerns should be accompanied by compassion to effectively boost employees' exploration. At the same time, managers should develop strong observational ability in order to keep themselves in the picture about everyone's progress so that benevolent leadership can be properly demonstrated in a timely manner.

The positive effect of work passion on both exploration and exploitation suggests managers can train employees by igniting their affective perseverance in terms of enthusiasm about and love for work. Such perseverance help shift employees' mindsets from an utilitarianism to an enjoyment mindset, consequently enhancing employees' capability of using exploration or exploitation suitably under different circumstances. For example, employees with strong work passion likely engage in exploitation for the sake of rapidly improving job performance in a short run and in exploration for long-term sustainable growth and development.

The positive moderating effect of uncertainty avoidance suggests that benevolent leadership is more influential to employees' exploration in the environment of high uncertainty avoidance. In the same environment, the negative moderating effect of uncertainty avoidance suggests that work passion is less influential to employees' exploration. Taken together, managers should reflect upon their cultural environment so as to adjust management strategies to improve job performance based on the level of uncertainty avoidance. With high uncertainty avoidance, benevolent leadership rather than work passion should be strongly emphasized by taking supportive, considerate, and helpful actions. On the contrary, with low uncertainty avoidance, managers should shift the focus from benevolent leadership to work passion by frequently highlighting the importance of work passion, developing passionate spirits, and pursuing the happiness of job career. As a result, job performance can be consequently improved.

Last but not least, it is unrealistic to simply assume that exploration and exploitation can be both easily increased to improve job performance. Due to the negative influence of exploitation on exploration, the positive effect of exploration on job performance is likely constrained by the degree of exploitation. For instance, in the contingency in which exploration is critical, managers may prioritize benevolent leadership over work passion. In summary, by making good use of the mediating and moderating mechanisms explored in this study, employees are likely motivated to develop sound ambidexterity to obtain great job performance.

4.3 Limitations and future research

In this study, there are two major limitations that may be taken into account for further improvement in future research. The first limitation relates its generalizability of research findings due to the limited sample organizations from Hong Kong and Taiwan. Hence, the empirical findings may not be highly generalizable to service workers in non-Asian regions. Second, due to its theoretical foundation based on social cognitive theory and ambidexterity theory, this study does not address political or personality variables (e.g., organizational politics, opportunism, consciousness, or neuroticism) to clarify the formation of job performance.

Future researchers can investigate more diverse industry workers with longitudinal observations, integrate novel theories to study workplace dynamics, and test a wide variety of moderators so that effective training and learning practices for making good use of ambidexterity can be accurately provided. Finally, future research can link the concept of learning ambidexterity to different types of organizational innovation or structures. For example, exploitation relates to developing incremental innovation or maintaining organizational routines while exploration relates to creating radical innovation or initiating organizational change.

Appendix 1: Measurement items

Job performance (Source: Soane et al. 2012)

- JP1. My job performance is good.
- JP2. The degree of the completion of my work tasks is very high.
- JP3. I always complete the duties specified in our job description.
- JP4. I meet the formal performance requirements of the job.
- JP5. I fulfill the responsibilities required by our job.

Exploration (Source: Lee and Kim 2021)

- ER1. I am interested in searching for new solutions with respect to my job.

- ER2. I am interested in evaluating different innovative options with respect to my job.
- ER3. I like to explore novel things in my job.
- ER4. I am interested in studying and discussing unclear issues in my job.
- ER5. I am adaptable to diverse job activities.

Exploitation (Source: Lee and Kim [2021](#))

- EI1. I prefer to do the job I am familiar with.
- EI2. I prefer to learn about routine job activities to achieve goals.
- EI3. I prefer to learn about regular job activities that serve my job performance.

Benevolent leadership (Source: Chen et al. [2014](#))

- BL1. My supervisor is like a family member when he/she gets along with me.
- BL2. My supervisor devotes all his/her energy to taking care of me.
- BL3. My supervisor ordinarily shows a kind concern for my comfort.
- BL4. My supervisor will help me when I'm in an emergency.
- BL5. My supervisor takes very thoughtful care of subordinates.
- BL6. My supervisor meets my needs according to my personal requests.
- BL7. My supervisor encourages me when I encounter arduous problems.
- BL8. My supervisor tries to understand what the cause is when I don't perform well.

Work passion (Source: Lin and Chen [2016](#))

- PA1. I derive my job satisfaction from working hard.
- PA2. I enjoy working.
- PA3. I look forward to returning to work when I am away from it for few days.
- PA4. I accomplish my job because I like it.
- PA5. I wish that I could work harder than before.
- PA6. I have passion of doing my job.

Uncertainty avoidance (Source: Jung and Kellaris [2004](#))

- UA1. In the workplace, I prefer specific instructions to abstract guidelines.
- UA2. I tend to get anxious easily when I don't know work outcomes.
- UA3. I feel stressful when I cannot predict good work outcomes.

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