Stream (Track 11: Organisational Behaviour)
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Absorptive Capacity and Creative Performance at the Individual Level

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ABSTRACT

In response to calls for more research on micro-foundations of absorptive capacity (AC), we first examine the antecedents of individuals' potential AC (acquisition and assimilation) and realized AC (transformation and exploitation), including organisational commitment to learn and individuals' anticipated reciprocal benefits to share knowledge. We then examine the mediating role of realized AC in linking potential AC and creativity performance. Using 125 matched employee-supervisor data collected at two time point, our results show that individuals' anticipated reciprocal benefits predict potential and realized AC, and explains significant incremental variance over and above intrinsic motivation and anticipated extrinsic rewards. Organisational commitment to learn enhances individuals' potential AC. Mediation analysis reveal that realised AC mediated the relationship between potential AC and creativity performance.

Keywords:
Creativity, motivation, knowledge management or transfer, individual learning, organisational learning

INTRODUCTION

Researchers have shown that the development of absorptive capacity (AC) contributes towards learning and knowledge transfer within organisations (Zahra & George, 2002) and innovation (Tsai, 2001), and consequently for organisational performance (Kostopoulos, Papalexandris, Papachroni, & Ioannou, 2011). Fundamentally, an organisation's AC depends on the ability of its members to recognize valuable external knowledge, align it with existing organisational capabilities and promote its utilization within the organisation (Cohen & Levinthal, 1990). Yet, to date, AC research focus on the individual level remain under-researched (Foss, 2011; Volberda, Foss, & Lyles, 2010). Instead, most has been studied at the country, inter-organisational, intra-organisational and group level of analysis (Lane, Koka, & Pathak, 2006; Volberda et al., 2010). This limited focus is surprising, especially since that individual level observations have been argued to be the most appropriate type of data in improving our understanding of the micro-foundations needed to explain the emergence and change of organisational-level variables such as AC (Minbaeva, Mäkelä, & Rabbiosi, 2012).

Therefore, this study focuses on the role of individuals in identifying, assimilating, utilizing and exploiting external knowledge, addressing what Volberda et al. (2010) and Lane et al. (2006) argue is a pressing need for our understanding of AC. We concur with Minbaeva and colleagues' argument that individuals are heterogeneous: they differ in the degree of their motivation and how they respond to external cues for appropriate learning and knowledge sharing attitudes - and that these differences

reflect their respective AC (Minbaeva et al., 2012). Theoretically, we bring together research from the absorptive capacity, motivation and organisational learning fields, and specifically develop the argument that individuals need to have a supportive learning climate and adequate motivation to increase the level of effort that individuals undertake to identify external knowledge, assimilate it and utilize it to increase their creative performance. To the extent that research on knowledge sharing has dealt with motivation, it has typically focused on intrinsic motivation and/or organisational reward as a form of extrinsic motivation (e.g., Gagné, 2009). In contrast, we argue that employees anticipated reciprocal benefits for knowledge sharing predict their potential and realized AC, over and above the effect of intrinsic motivation and anticipated extrinsic reward. Furthermore, individuals' potential AC influences their creative performance, through the effect of their realized AC.

THEORETICAL FRAMEWORK AND HYPOTHESES

Why Absorptive Capacity?

Starting from the seminal work of Cohen and Levinthal, AC is defined as the "ability of the firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (1990: 128). This concept was further elaborated by Zahra and George (2002), where the authors have suggested distinguishing four dimensions of AC, each playing different but complementary roles in explaining how AC can influence innovation. These four dimensions are, respectively, acquisition (the ability to identify and acquire critical external knowledge), assimilation (a firm's routines and processes that allow it to analyse, process, interpret and understand the obtained external knowledge), transformation (the ability to modify and adapt external knowledge and combine new and existing knowledge to gain new insights and perspectives), and exploitation (the ability to incorporate the newly acquired and transformed knowledge into the firm's competitive advantage such as innovative performance). Zahra and George (2002) propose that the first two dimensions form a firm's potential AC, while the other two dimensions constitute a firm's realized AC. Whereas potential AC makes a firm receptive to external knowledge flows, realized AC reflects the efficiency in leveraging externally absorbed knowledge and transform it into innovation outcome.

Since its introduction, AC has long been recognized as one of the key factors affecting innovation, adaptation and knowledge creation in organisations (Lewin, Massini, & Peeters, 2011; Minbaeva,

Pedersen, Björkman, Fey, & Park, 2003; Volberda et al., 2010). Although most of the theoretical and empirical development of the concept of AC has occurred at the country, inter-organisation, organisation and group level of analysis, researchers have argued that a firm's AC "depends on the individual absorptive capacities of the organisation's members" (Lane et al., 2006, p. 838). This leads us to propose that these same propositions also operate at the individual level.

Absorptive Capacity at the Individual Level

Following Zahra and George's (2002) seminal paper, we also decompose AC into potential and realised AC at the individual level. This is consistent with prior theory and empirical studies which suggest that potential and realised AC both are theoretically and empirically distinguishable (e.g., Camisón & Forés, 2010; Jansen, Van Den Bosch, & Volberda, 2005). Staying close to the original logic as defined by Cohen and Levinthal (1990), we define individual-level AC as the level of effort that individuals undertake to identify external knowledge, assimilate it and utilize it to increase their creative performance. In more recent years, researchers have argued that a full understanding of intra-organisational knowledge sharing requires a focus on individuals for two reasons. First, according to the knowledge-based view of the firm theory, individuals are primary actors in knowledge creation, and key repositories of knowledge in organisations (Foss, 2007; Grant, 1996). Organisational competitive advantages depend on individuals' ability to "scan the knowledge environment, bring the knowledge into the firm, and exploit the knowledge in products, processes, and services" (Lane et al., 2006, p. 854). Second, individual efforts constitute important building blocks of organisational AC, as Foss (2007, p. 43) pointed out that organisational knowledge processes "cannot be reached *in lieu* of a starting point in individuals". Taken together, theoretically, it is clear that individual AC is considered as a major determinant of knowledge creation and sharing within organisations. However, the empirical studies remain sparse, and the current literatures pays less attention on how to improve or develop individuals AC (Bock, Zmud, Kim, & Lee, 2005; Liao, Fei, & Chen, 2007). This leads us to a discussion around the predictors of individuals' AC, as follows.

Antecedents and Outcome of Individual AC

This study concurs with the view that "individual-level conditions of action" influence knowledge creation and sharing among individuals (Minbaeva et al., 2012). We argue that the way in which

individuals' AC is influenced by two primary mechanisms: individuals' extrinsic motivation (Bock et al., 2005), and a signalling effect that the organisation values learning (Sinkula, Baker, & Noordewier, 1997). With regard to the outcome of individual AC, building on the established relationship between a firm's AC and its innovative performance, we adapt this relationship to the individual level and posit employee creativity as an outcome of his/her AC. This is because that employee creativity is an important source of organisational innovation and competitive advantage. Figure 1 below illustrates our proposed model. We discuss each antecedent and outcome in more details below.

Insert Figure 1 about here

The Role of Anticipated Reciprocal Benefits

Extant research acknowledges motivation as a key predictor of knowledge sharing (Gagné, 2009; Osterloh & Frey, 2000; Reinholt, Pedersen, & Foss, 2011). Two broad classes of motivation – extrinsic and intrinsic – have been defined and examined across various contexts and studies (Osterloh & Frey, 2000). While extrinsic motivation focuses on the goal-driven reasons (e.g., monetary rewards or benefits earned), intrinsic motivation indicates the pleasure and inherent satisfaction derived from a specific activity (Deci, Koestner, & Ryan, 1999). Research taking the motivational perspective has largely assumed that intrinsic motivation is superior to extrinsic motivation in influencing knowledge sharing. Given this, we argue that individual anticipated reciprocal benefits, as a form of extrinsic motivation will predict his /her AC, going over and above intrinsic motivation and anticipated extrinsic reward as predictors. In contrast, most current research that explicitly influences motivation has provided a less nuanced view of motivation by treating it as a unitary concept.

Distinct from economic exchange motivators (i.e., anticipated extrinsic rewards), anticipated reciprocal relationships capture employees' desires to maintain ongoing relationships with others, specifically with regard to knowledge provision and reception (Bock et al., 2005). Reciprocity behaviour has been highlighted as a benefit of individuals engaging in social exchange (Blau, 1964). Bock et al. (2005) suggest that individuals' knowledge sharing behaviours are influenced by their social and organisational context, especially where unspecified cooperative outputs such as knowledge are exchanged, the social exchange relationship is a major determinant of their attitudes. Previous

empirical research indicated that anticipated reciprocal benefits can provide an effective motivation to facilitate knowledge sharing and thus achieve long-term mutual cooperation (Bock et al., 2005; Lin, 2007). Thus, if employees believe they can obtain reciprocal benefits from other colleagues by sharing their knowledge, they are more likely to view knowledge sharing favorably and are more likely to be engaged in knowledge creation and sharing behaviours. The following hypotheses are proposed:

> *Hypothesis 1a: Anticipated reciprocal benefits accounts for the prediction of employee potential AC, that is above and beyond the effect of intrinsic motivation and anticipated extrinsic reward.*
> *Hypothesis 1b: Anticipated reciprocal benefits accounts for the prediction of employee realized AC, that is above and beyond the effect of intrinsic motivation and anticipated extrinsic reward.*

The Role of Organisational Commitment to Learn

Organisational learning theory suggests that firms with strong commitment to learn encourage and value employees' continuous effort to identify and acquire valuable external knowledge, and share and utilized obtained knowledge to improve performance (Baker & Sinkula, 1999; Sinkula et al., 1997). According to Sinkula et al. (1997), organisational commitment to learning refers to the degree to which an organisation values and promotes learning. A strong organisational commitment to learn is likely to foster a learning climate which influence the degree to which firms are likely to promote generative learning as a long-lasting core competency (Baker & Sinkula, 1999; Sinkula et al., 1997). For example, managers in committed organisations expect employees to constantly pursue knowledge outside the immediate scope of their work (Baker & Sinkula, 1999; Calantone, Cavusgil, & Zhao, 2002). If an organisation does not encourage the development of knowledge, employees will not be motivated to identify, acquire, assimilate and utilize relevant external knowledge. Thus, we hypothesize a positive relationship between individuals' perception of organisational commitment to learn and their potential and realized AC:

> *Hypothesis 2a: Organisational commitment to learn accounts for the prediction of employee potential AC, that is above and beyond the effect of intrinsic motivation and anticipated extrinsic reward.*
> *Hypothesis 2b: Organisational commitment to learn for the prediction of employee realized AC, that is above and beyond the effect of intrinsic motivation and anticipated extrinsic reward.*

Potential AC, Realized AC and Creative Performance

Adapting the organisational AC and innovation relationship to the individual level, we focus on individual creative performance as the outcome of their AC in this study. We believe this is appreciate because employee creativity is an important source of organisational innovation and competitive advantage (Gong, Cheung, Wang, & Huang, 2012; Hirst, Van Knippenberg, & Zhou, 2009). Following prior research, individual creative performance is defined as employees' generation of novel and useful ideas concerning products, procedures, and processes at work (Hirst et al., 2009).

With regard to the relationship between potential AC, realized AC and creative performance, we argue that the impact on creative performance is only through realized AC, rather than directly influenced by potential AC (e.g., Tsai, 2001). While potential and realized AC are conceptualized as two distinct dimensions by Zahra and George (2002), it is argued that in order for individuals to transform and exploit new knowledge (to generate creative performance), they must first have the capabilities to acquire and assimilate them previously. At the organisational level, Zahra and George (2002: 191) assert this distinction very clearly – 'a high PACAP *(potential AC)* does not necessarily imply enhanced performance. RACAP (realized AC) involves transforming and exploiting the assimilated knowledge by incorporating it into the firm's operations, thereby improving its performance….Despite the importance of PACAP, RACAP is the primary source of performance improvements'. Hence, at the individual level, we hypothesize the following:

> *Hypothesis 3: Employee realized AC mediates the positive relationship between employee potential AC and creativity.*

As our data collection is limited to a sample of Chinese employees, the unique character of Chinese culture must be taken into consideration. China is considered to be among the most collectivist countries, where individuals generally place greater emphasis on the importance of social relationships and communal sharing than their counterparts from the individualistic countries. For example, research has suggested that Chinese workers are highly likely to reciprocate favourable treatment by others at work (Farh et al., 2007). Given these findings, it is possible that the effects of anticipated reciprocal relationship benefit will be less robust for employees from the Western context than for their East Asian counterparts, for whom motivation for improving personal relationships at work is especially strong. This is also in line with Bock et al.'s (2005) study where they found that at least in the Korean context, favourable individual attitudes toward knowledge sharing are influenced

by relational motivators rather than by expectations of extrinsic rewards. Hence, we drew our sample from China, and we believe it is reasonable to posit that individual anticipated reciprocal relationship benefit is likely to be more important in predicting Chinese employees' knowledge sharing behaviour, over and above the effect of the commonly studied intrinsic motivation and perceived reward.

In summary, the proposed model (see Figure 1) contributes to AC research in two major directions: first, it response to the calls for more research focus on the individual level (Lane et al., 2006; Volberda et al., 2010). At the individual level, we demonstrated that individual motivation and their perception of organisational commitment to learn influence their engagement in potential and realized AC, and in turn, their creative performance. Second, by examine the anticipated reciprocal benefits as a form of extrinsic motivation, we demonstrate the predicting role of reciprocal benefits on employees potential and realized AC, over and above intrinsic motivation and extrinsic reward.

METHODS

Sample and Data Collection Procedures

We draw our sample from employees working in a Chinese automotive design firm. We randomly selected 260 research and development intensive employees (i.e., engineers, testers) and their immediate supervisor from multiple departments (i.e., research and development) in the organisation. We choose research and intensive employee group because we believe this group of employees provides a useful venue for this study given their typically heavy job demands and strong need for creativity. We collected our data cross two data point. We first collect perception of organisational commitment to learn, anticipated reciprocal benefits, potential AC and control variables in time one, and realized AC was collected four weeks later. Supervisors provided rating for their subordinates' creative performance. Both subordinates and supervisors completed the surveys during regular working hours and returned completed questionnaires in pre-provided envelops. Participation was voluntary and participants assured of the confidentiality of responses. A total of 125 (48%) paired useable responses were received. The sample consists mostly employees who are young (75.2% are aged between 20 and 29), female (76.8%), highly educated (50.4% held a diploma degree or above), and had worked for the organisation less than three years (51.2% had tenure less than three years).

Measures

We utilized existing measures from the literature for our constructs where possible to minimize concerns regarding construct validity. All materials were presented in Chinese. Questions were translated from English into Chinese, and back translated by the author and a research assistant who are fluent in both languages (Mullen, 1995). Except where noted, survey items were measured on five-point Likert-type scale anchored at 1 = Strongly Disagree and 5 = Strongly Agree.

Individual Absorptive Capacity. We developed 20 items measuring the four dimensions of an individual's potential and realized AC (i.e., acquisition, assimilation, transformation and exploitation) by adapting measures from Jansen et al. (2005) and Flatten, Engelen, Zahra and Brettel (2011). The five-item *acquisition* scale assessed an individual's ability to identify and obtain new knowledge from external sources. The five-item *assimilation* scale assessed an individual's ability to develop processes and routines useful in analysing, interpreting, and understanding newly acquired external knowledge (Zahra & George, 2002). The five-item scale *transformation* measured the extent to which individuals were able to develop routines to facilitate the combination of existing knowledge with the newly acquired and assimilated knowledge to form new knowledge or insights. The five-item *exploitation* scale assessed the extent to which individuals were able to apply and exploit new external knowledge to improve the current work processes and procedures. As discussed previously, drawing upon Zahra and George's (2002) conceptualizations, *potential AC* is measured by the acquisition and assimilation scale, while *realized AC* is measured by the transformation and exploitation scale. The Cronbach's alpha was .79 for potential AC, and .91 for realized AC. The list of item is provided in Appendix 1.

Anticipated Reciprocal Benefits. It was measured using five items that are adapted from Bock et al. (2005). A sample item was "My knowledge sharing would strengthen the ties between existing members in the organisation and myself". The Cronbach's alpha was .88.

Organisational Commitment to Learn. It was measured using four items that are adapted from Sinkula et al. (1997). A sample item was "The basic values of this organisation include learning as key to improvement". The Cronbach's alpha was .85.

Innovation Performance. It was measured using nine items that are adapted from Tierney, Farmer, and Graen (1999). A sample item was "the employee generates novel, but operable work-related ideas". The Cronbach's alpha was .93.

Control Variables. We controlled for the demographic variables of age, education and organisational tenure, as these variables have been found to influence creativity. We also controlled for intrinsic motivation and anticipated extrinsic reward. Intrinsic motivation consists of four items from Reinholt et al. (2011), and a sample item was "Because I find it personally satisfying". The Cronbach's alpha was .72. Anticipated extrinsic reward is measured using four items that are adapted from Bock et al. (2005). These items ask about whether they will receive rewards or additional points for promotion in return for my knowledge sharing. A sample item was "I will receive monetary rewards in return for sharing knowledge in my company". The Cronbach's alpha was .79.

RESULTS

Descriptive Statistics

Descriptive statistics and intercorrelations for the study variables are presented in Table 1. An initial investigation of the results revealed some high correlations ($r > .50$), ranging from .51 (potential and realized AC) to .56 (realized AC and creative performance), indicating the potential issue of multicollinearity. We conducted a multiple linear regression model to obtain the variance inflation factor (VIF) for all variables. While different critical VIF values have been used as rules of thumb to indicate excessive or serious multicollinearity, a common rule of thumb is that if $VIF > 10$, the multicollinearity is severe (Neter, Wasserman, & Kutner, 1989). The VIF values of independent variables ranged from 1.01 to 1.70, indicating that the independent variables do not have a severe multicollinearity problem. Therefore, all variables were retained.

Insert Tables 1 about here

Hypothesis Testing

We used hierarchical regression models to investigate the proposed hypotheses 1 and 2. Table 2 below shows the hierarchical regression results for each of our dependent variables. Potential AC was used as the outcome for Model 1 and 2, whereas realized AC was the outcome for Model 3 and 4. In Model 1 and 3, we included only control variables. Model 2 and 4 includes all control variables and the main effects between anticipated reciprocal benefits and organisational commitment to potential and realized AC, respectively. As indicated in Table 2, both anticipated reciprocal benefits and

organisational commitment to learn were shown to significantly and positively influence employee potential AC ($\beta = .25$, $p < .05$; $\beta = .14$, $p < .05$), thus providing support to Hypothesis 1a and 2a. With regard to realized AC, as presented in Table 2, only anticipated reciprocal benefits showed a strong positive impact on employee realized AC ($\beta = .27$, $p < .01$), thus providing support to Hypothesis 1b. Organisational commitment to learn did not significantly predict employee realized AC ($\beta = .02$, $p > .10$), thus Hypothesis 2b is rejected.

Insert Tables 2 about here

To test for mediation (hypothesis 3), we followed the recommendations of Preacher and Hayes (2004), who suggest using a bootstrapping procedure to compute a confidence interval around the indirect effect. If the values of the estimated effect sizes within the confidence interval include zero, this indicates a non-significant effect. This approach has been used successfully in a number of published studies (e.g., Brauer & Er-rafiy, 2011; Wiltermuth, 2011). We used the SPSS macros that Preacher and Hayes provide for this procedure. In this analysis, potential AC was the independent variable, realized AC was the dependent variable, and creative performance was the mediator. Results revealed that the indirect effect via realized AC equalled .11 ($p < .001$), the 95% confidence interval ranging from .06 to .17. The indirect effect can be interpreted as significant because the bootstrap confidence intervals were entirely above zero, thus Hypotheses 3 is supported (see also Figure 2).

Insert Figure 2 about here

DISCUSSION

Although previous research has been considering AC as a main determinant of intra-organisational knowledge transfer, research focus on the individual level remain limited. Building on the fundamental insights of Cohen and Levinthal (1990) and others about how organisations learn (e.g., Baker & Sinkula, 1999; Sinkula et al., 1997), we adapt the AC framework from the organisational to the individual level in order to contribute to a better understanding of how individuals identity and absorb external knowledge and how the efforts of individuals shape their creative performance. In particular, we examined (1) the relationship between employees' perceptions of organisational

commitment to learn and their extrinsic motivation (anticipated reciprocal benefits), and their potential (i.e., acquisition and assimilation) and realized AC (i.e., transformation and exploitation), and (2) the role of realized AC in mediating the relationship between employee potential AC and creative performance. In doing so, we contribute to the AC literature by responding to the calls for more research focus on the individual level (e.g., Volberda et al., 2010). An individual level analysis is considered appropriate and essential, because individuals are considered as primary actors in knowledge creation, and key repositories of knowledge in organisations (Foss, 2007; Grant, 1996), such that organisational knowledge processes "cannot be reached in lieu of a starting point in individuals" (Foss, 2007, p. 43).

Specifically, building upon research in the motivation and organisational learning literature, we explored the impact of individual perception of organisational commitment to learn and anticipated reciprocal benefits as a form of extrinsic motivation for each phase of AC. In short, we argue that the way in which individuals' AC is influenced by two primary mechanisms: individuals' extrinsic motivation (Bock et al., 2005), and a signalling effect that the organisation values learning (Sinkula et al., 1997). Our findings suggest that employees anticipated reciprocal benefits for knowledge sharing directly influence their engagement in identifying, acquiring, sharing and utilizing relevant knowledge. It should be noted that anticipated reciprocal benefits assesses new and meaningful variance in employees potential and realized AC that is in excess of that predicted by intrinsic motivation and anticipated organisational reward in current knowledge transfer literature (e.g., Gagné, 2009). Our findings show that anticipated reciprocal benefits complement and extend researchers' understanding of the motivational antecedents to individual AC. However, individual-level perceptions of whether their organisation values learning directly influence their willingness to actively identify, acquire and sharing relevant external knowledge, while the perception does not directly influence their willingness to utilized obtained external knowledge.

We also find that employee realized AC significantly mediates the relationship between their potential AC and creative performance. This significant mediation result further confirm the argument made by Zahra and George (2002) at the organisational level, where the authors assert that "despite the importance of PACAP (*potential AC*), RACAP (*realized AC*) is the primary source of performance

improvements' (p. 191). Taken together, our results provide evidence for the importance of individuals in the process of knowledge creation, sharing and utilization, a concept at the core of the knowledge-based view of the firm (Grant, 1996).

A key managerial implication is that our study speaks directly to the question of how an organisation can prepare and encourage its employees to absorbing external knowledge. First, we show that organisational should not emphasize organisational extrinsic rewards (i.e., salary incentives and bonuses) as a primary knowledge sharing mechanism, because they may only provide temporary incentives for knowledge sharing. Instead, managers interested in developing and sustaining knowledge sharing should focus on enhancing the positive social psychological state of employees regarding social exchange (i.e. relational benefits in helping others), which precedes knowledge sharing behaviours. Improving perceptions of reciprocal benefits among employees is necessary for creating and maintaining a positive knowledge sharing culture in organisations. Second, we show that organisations should balance their employees' efforts at learning from external knowledge across these different areas. For example, not only organisation should establish a culture which values learning activities, but also reward employees' effort to enable external ideas to be assimilated and utilized. In many cases, organisations have given most attention to the search for these ideas in their open innovation initiatives, disregarding their assimilation and utilization within the organisation.

There are several limitations to this study, requiring further examination and additional research. First, the sample was drawn from 125 employees in a large Chinese automotive organisation. To further generalize the findings, the research model should be tested further using samples from other organisations, industries and countries, since industrial and cultural differences influence how employees respond to various forms of extrinsic rewards, and how they would like to be rewarded for sharing and utilizing knowledge. Second, we also emphasize the need to pay more attention to individual differences and its effect on knowledge processes. Future research can examine how personal traits may moderate the relationships between motivation factors and employees' willingness to engage in knowledge creation and sharing process. Thirdly, we recognize that while the study has obtained several significant results, a larger sample that brings more statistical power would have increased generalizability.

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Figure 1

Proposed Theoretical Model

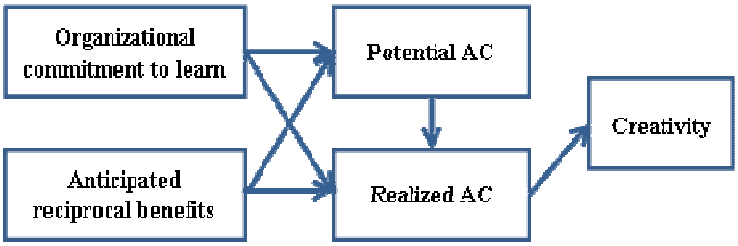
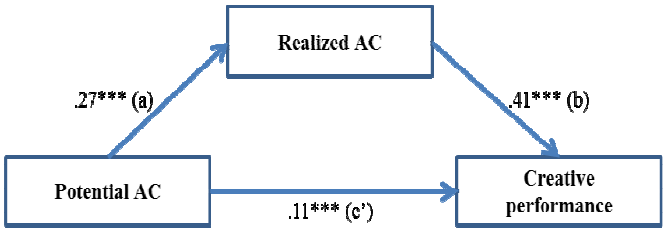


Figure 2

Results of the Mediation Analysis



Note: $^{***}p < .001$

Table 1

Descriptive Statistics among Research Variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1.77	0.42											
2. Age	2.14	0.50	-.07										
3. Job tenure	2.19	1.01	.07	.15									
4. Education	1.65	0.73	-.01	.27**	.00								
5. Intrinsic motivation	5.57	0.76	-.03	.07	-.07	.25**	(.72)						
6. Anticipated extrinsic reward	3.08	0.67	-.02	.04	.14	.10	.11	(.79)					
7. Anticipated reciprocal benefits	3.73	0.55	.08	.14	.03	.17	.28**	.27**	(.88)				
8. Organizational commitment to learn	5.28	1.08	-.03	-.01	.05	.22*	.42**	.21*	.22*	(.85)			
9. Potential absorptive capacity	4.67	0.80	-.04	.13	.05	.26**	.51**	.11	.33**	.39**	(.79)		
10. Realized absorptive capacity	3.67	0.49	-.05	.25**	.05	.32**	.28**	.20	.41**	.21*	.51**	(.91)	
11. Creative performance	3.67	0.37	.08	.09	.11	.21*	.25**	.32**	.50**	.19*	.27**	.56**	(.93)

*$p < .05$
**$p < .01$
Note: Cronbach's coefficient alpha is provided along the diagonal in parentheses

Table 2

Results of Hierarchical Regression Analysis for Potential and Realized AC

Variables	Potential AC		Realized AC	
	Model 1	Model 2	Model 3	Model 4
Gender	-.05	-.07	-.03	-.07
Age	.08	.08	.16^{+}	.13
Job tenure	.06	.05	.01	.01
Education	.13	.09	.15*	.13*
Intrinsic motivation	.50***	.39***	.13*	.07
Anticipated extrinsic reward	.05	-.03	.11^{+}	.05
Anticipated reciprocal benefits		.25*		.27**
Organizational commitment to learn		.14*		.02
R^2	.29***	.35**	.20***	.28**
ΔR^2		.06**		.08**
F for increment in R^2		4.91**		6.41**

$^{+}p < .10$
$^{*}p < .05$
$^{**}p < .01$
$^{***}p < .001$

Appendix 1

List of Absorptive Capacity Items

Constructs			Items
Potential AC	Acquisition	1	I regularly collect industry information through informal means (e.g., lunch with industry friends, talks with trade partners).
		2	I regularly scan the external environment for new information, knowledge or technologies.
		3	It is common for me to approach customers, suppliers or other third parties (i.e. consultants, financial advisors, etc) to acquire new knowledge.
		4	The search for relevant information concerning my industry is every-day business in my work.
		5	I keep myself constantly updated with the latest technologies or state of the art knowledge related to my organisation's business.
	Assimilation	1	I am quick to recognise and understand the usefulness of new external knowledge to my work.
		2	New opportunities to serve my company's customers are quickly understood.
		3	I am quick to analyse and interpret the impact of changing market demands on my company's products and/or services.
		4	I regularly meet with colleagues to exchange and analyse new knowledge or technological developments.
		5	I am slow to recognise and interpret shifts in our market (e.g., competition, regulation, demography).
Realized AC	Transformation	1	In my work, it is common for me to record and store newly acquired knowledge for future reference.
		2	I have the ability to successfully link my existing knowledge with new knowledge or insights.
		3	I regularly meet with colleagues to discuss how to utilise new knowledge to improve our current products, services or internal processes.
		4	It is common for me to utilise new knowledge to generate new ideas and insights for my work.
		5	I regularly consider the consequences of changing market demands in terms of new (or improved) products and/or services for our customers.
	Exploitation	1	I regularly reconsider my current work processes (or practices) and adapts them in accordance with new knowledge and/or technologies.
		2	I have the ability to work more effectively by adopting new knowledge and/or technologies.
		3	In my work, I regularly utilise new knowledge and/or technologies to develop new ways of doing things.
		4	In my work, I am proficient in transforming new knowledge into improved work processes or practices.
		5	I regularly consider how to better exploit new knowledge and/or technologies in my work.