

3Rs ABSORPTIVE CAPACITY: RESPONSIVE, REALIZED, AND RECONFIGURED

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Abstract:

Over two decades, encompassed within the broader perspective that absorptive capacity is more salient, in organizational management about how changes in innovation affect the outcome of firms performance. Much of the currently research has focused on those issues. However, its origin, definition, and construct remains ambiguity and even causes reification endanger the validity of study in scientific community of the field. Therefore, based on Piaget's cognitive adaptation perspective and its theoretical roots, We echo to past contributions on reconceptualization and reconceptualize absorptive capacity. We propose a 3Rs model derived from literature reviews. Compared with the past model, our holistic model is concise and precise which fits to enhance various researches to create his or her novel insights and implications especially to the researches of ambidextrous organization. In addition, the evolution and extension of theory is discussed.

Keywords: absorptive capacity, organizational innovation, reconceptualization.

1. INTRODUCTION

Although receives much of various citations, to date, the conceptualization of absorptive capacity (AC) remains a problematic issue especially on its unclear relationship between constructs. Over time, several researches contribute more or less suggestions and corrections one after another (e.g. van den Bosch, Volberda, & Boer, 1999; Lane et al., 2006; Minbaeva, Pedersen, Björkman, Fey, & Park, 2003; Todorova & Durisin, 2007; van den Bosch, van Wijk, & Volberda, 2003; Zahra & George, 2002). This means that published constructs remain ambiguity. In this paper, we propose a Responsive, Realized, and Reconfigured AC model (named as 3RsAC) which derived from the literature review.

Present study provides fresh insight in five respects. First, 3RsAC is a precise and concise atomic model which offers a better understanding the relationship between the constructs on AC. Second, we bridging the gaps between the contexts of micro and macro, the conflicting viewpoints between competence based and human capital based. Third, 3RsAC is plausible and meaningful which offers researcher to obtain a benefit for discovering real facts especially on the research of ambidextrous organizations. Four, 3RsAC is a driver to response their stakeholder which enhances acquisition of valued knowledge external and internal to the organization. The last, Five, 3RsAC leads the concept to multi-circle learning for which benefits organization performance especially in the turbulence circumstance.

2. THE EVOLUTION

Much of reconceptualization research keeps evolving such as Cohen & Levinthal (1990, 1994), Mowery & Oxley (1995), Kim (1998), Lane & Lubatkin (1998), Zahra & George (2002), Minbaeva et al., (2003), Lane, et al.(2006), and Todorova & Durisin (2007) and so forth. Over time, In order to propose a model, we first examine and distinguish the prior works of underlying assumption about the origin of AC. we receives some insights from past reconceptualization works.

2.1. The initial conceptualization

The theoretic roots of AC at least imply three main concepts (see also Lane et al., 2006). First, it is one kind of organizational capabilities which enhances a firm to accumulate its own potential ability such as one kind of knowledge management capabilities (Zahra & George, 2002) which has potential abilities to enhance a firm's innovation. Second, it works as a basic but importance component in a organizational learning process. As Lane et al. (2006) noted that the initial concept of AC its three dimensions “is not only the ability to imitate other firms’ products or processes but also the ability to exploit less commercially focused knowledge”. At last, third, it is an origin of a firm's competitive advantage (Cohen & Levinthal, 1990; Kim, 1998; Lane, et al. 2006; van den Bosch et al., 1999; Zahra & George, 2002).

2.2. The origin of AC

We identify and define three types underlying assumption of origin on AC, they are exogenous, endogenous, and hybrid view which interactives between the mechanisms external and internal to the various kind of organizations. First, the exogenous view is such as Cohen & Levinthal’s work which emphasizes a firm to assimilate and exploit the external valued knowledge to commercial ends (1990, p. 128). Second, the endogenous view is based

on human capital perspective (e.g. Minbaeva et al., 2003; Mowery & Oxley, 1995) which "intend to treat the development of AC endogenously by identifying the organizational mechanisms (HRM practices) " (Minbaeva et al., 2003). Third, the hybrid view is such as the work of van den Bosch et al. (1999). They claim a coevolution between firms AC and their knowledge environment.

2.3. Past reconceptualization model

Although several researches probed the reconceptualization issues and offered more corrections and suggestions especially on its definition, only five researches proposed the reconceptualization model in the peer-reviewed literatures since 1990, as shown in table 1.

An overview

Cohen and Leventhal (1990)

The authors' seminal work leads the research stream of AC. Their empirical prototype model one construct with three dimensions which describes the relationship between knowledge and AC, noted, "absorptive capacity is more likely to be developed and maintained as a byproduct of routine activity when the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base" (1990, p. 150). Although the prototype model with rich citations across the research fields, over time, researchers criticised its construct unclear (cf. Zahra & George, 2002).

van den Bosch et al. (1999)

The authors offered a co-evolution model from an organizational evolution perspective which integrated novel insight such as they concerned the context phenomena between micro and macro, and firstly claimed feedback mechanism which reached a dynamic manner in the model. Although its rich contributions for theory building, the model relatively earns little response.

Lane et al. (2006)

The authors' seminal model is based on an organizational learning perspective. They firstly began with discussing the reification issue, commented existing model and then offered an one-construct and three-dimensions model. Due to is based on organizational learn issues, the model relative wins a limited feedback.

Zahra and George (2002) vs. Todorova and Durisin (2007)

Zahra and George's seminal model published a dynamic capacities view with which two-constructs and -four dimensions. After Summer 2006, the model widely accepts and increasingly works as the main paradigm in the field. However, caused by lack of probing the related domain knowledge, the model was critically examined by Todorova & Durisin and spoke some defects out (2007). Meanwhile, Todorova *et al.* offered one refine model is based on Zahra and George's. However, we discover the refine model remains uncompleted. Further, due to its complexity and is lack of to define the constructs they released, the model is problematic caused too difficult to conduct an empirical research (cf. Todorova & Durisin 2007).

The comparison

According to table 1, we grabbed some facts. First, as shown in the past models, AC shows its interdisciplinary manner so that gathers and receives various definitions with novel insight from researches. This means that to create an ontology-based model which links the contexts from micro to macro is necessary. An Ontology-based model, with its atomic characteristics, will be a good communication tool and play a role as a platform to the theoretical integration.

Table 1: The various reconceptualization models of AC

Model Profile	Context	Lens / Theory	Method	Origin
Cohen & Levinthal (1990)	Micro	Organizational Learning	Empirical study	Exogenous
van den Bosch et al. (1999)	Holistic	Co-Evolution	Case Study	hybrid
Zahra & George (2002)	Micro	Dynamic Capabilities	Concept Model	hybrid
Lane et al. (2006)	Micro	Organizational Learning	Concept Model	hybrid
Todorova & Durisin (2007)	Micro	Knowledge Development	Case study	hybrid

Second, table 1 said the trend which the origin of AC is shifted from exogenous view to the hybrid one. This means that the initial concept and its underlying assumption the extension is getting wider. That is, to reconceptualize the constructs of AC which have to consider both exogenous and endogenous factors and the issues interactive integration to the organization. Third, we find, since Cohen and Levinthal published their empirical model in summer 1990. Over two decades, though the research of AC is rich, currently researches tend to have a reification problematic (e.g. Lane *et al.*, 2006). To reduce this, considering to conduct an empirical based model is so critical especially on the the reconceptualization research of AC.

3. THE EXTENSION

3.1. Stakeholder responsiveness

Past research is yet to probe the issue so that caused much problematic especially the past model has neither a common agreeable theoretical definition(Liao, Welsch, & Stoica, 2003) nor a consensus model. We suggest to take the stakeholder theory (Freeman, 1999) solving this problem which is not only for a compatible concepts between AC and stakeholder theory are cope with the necessary for a firm to face a changable environment, but also Considering knowledge acquire and process knowledge, the theoretic boundary of AC is better like organizational boundaries with a better alignment which fits to the necessity of the firm.

The main nich includes two respects. First, the stakeholder theory encompass the external factors to the organization and align to exploit internal competences for firms to perform strategies. These notions fit the theory development trends of AC as the hybrid view which we defined in the ex section. Second, Compared to initiation concept (e.g. Cohen & Levinthal, 1990) with one single-circle learning context (cf. Lane et al, 2006), our model provides a double-circle learning context which will enhance the organizational learning performance and also develop the better relationships between the firm and its intraorganization and interorganization since the firm responses to its stakeholder.

3.2. Bridging epistemology

Knowledge is key component to organizational learning process and will influence the outcome of AC. Therefore, we take the knowledge-nature issue for granted which is one of the theoretical roots to create a model which enhance the organizational performance. To date, researches mainly deal with issues to define the construct of AC in the two approaches. Most of research employs the knowledge as possession approach (Nonaka, 1994) such as Zahra and George (2002). On the other hand, less research (e.g. Minbaeva *et al.*, 2003) employs the knowledge as embedded in practice approach such as Mowery and Oxley(1995).

However, to echo Cook and Brown's seminal work in 1999, we define and describe the nature of knowledge is based on an integrated view of bridging epistemology(Cook & Brown, 1999), Specifically, we suggest the nature of knowledge which integrates the approaches between knowing and knowledge, as two sides of the same coin of knowledge. Due to it is plausible of the fact.

3.3. A complementary from cognitive adaptation

Cognition is refer to acquisition of the knowledge acquire and process knowledge. Piaget argued cognitive adaptation is critical to the knowledge absorptive process and assumed that "Cognitive adaptation consists of equilibrium between assimilation and accommodation." (Piaget, 1970, p. 708). For Piaget, assimilation and accommodation are two sides of the same coin of adaptation (Block, 1982).

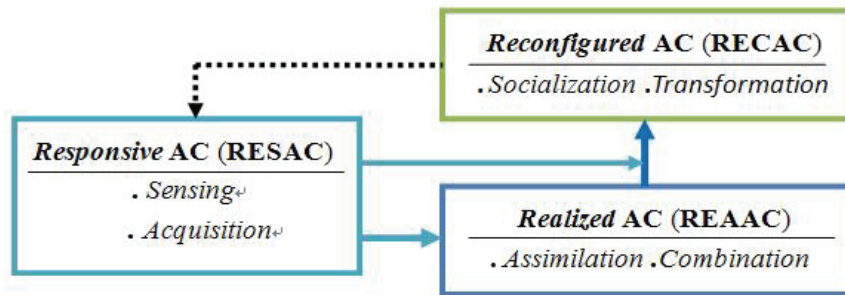
"Assimilation is the integration of external elements into evolving or completed structures"... [Accommodation is] any modification of an assimilatory scheme or structure by the elements it assimilates. [Assimilation] is necessary in that it assures the continuity of structures and the integration of new elements to these structures", [while]... accommodation is necessary to permit structural change, the transformation of structures as a function of the new elements encountered" (Piaget, 1970, pp. 706–708).

Piaget further added two postulates in 1977, noted, "First, Any scheme of assimilation tends to feed itself, that is, to incorporate outside elements compatible with its nature into itself.....but by itself does not imply the construction of novelties, ...Second, the entire scheme of assimilation must alter as it accommodates to the elements it assimilates, that is, it modifies itself in relation to the particularities of events but does not lose its continuity or its earlier powers of assimilation"(Block, 1982). To sum up, the best equilibrium between assimilation and accommodation means to have a good sense to predict in future.

4. THE 3RsAC MODEL

We conduct our ontology-based holistic model based on the above literatures and the related issues in which prior model mentioned. We then employ the concept of Piaget's cognitive adaptation theory to enhance us better understanding knowledge acquire and process knowledge. Meanwhile, we take Cook and Brown's bridging epistemology concept and redefine the nature of knowledge (Cook & Brown, 1999) and echo to Zahra and George (2002) which takes a dynamic capabilities view to define our three subsets of construct. The three constructs with six dimensions model, as shown in picture1. In addition, present paper assumes the firm is under the social cognitive phenomena and within a context which responses to its multiple stakeholders timely.

Picture 1: An ontology based model of 3Rs Absorptive Capacity (AC)



Source: Present paper

4.1. Definition

Based on the prior models of AC, as Zahra & George commented, "empirical studies do not always capture the rich theoretical arguments and the multidimensionality of the ACAP construct" (2002, p. 186). However, as Todorova & Durisin noted, Zahra & George's work remains several ambiguities (Todorova & Durisin, 2007). Accordingly, to enhance future empirical research we reconceptualize AC and define it as:

The firm's ability stakeholder knowledge acquire and process relevant knowledge into actions, by which sensing, acquisition, assimilation, combination, socialization, and transformation, to enhance sustained competitive advantage.

The clear definition we propose which is not only to fit our knowledge, experiences, and notions, but also gear to existing various organization theoretical concepts and echo the prior contributions as well. Present definition is better to understand the AC how to lead a firm reinforce, complement, and if necessary to reconfigure the firm's knowledge base (Lane et al., 2006; Zahra & George, 2002; Zahra et al., 2006) and earn its sustained competitive advantage (Barney, 1991).

4.2. Constructs and dimensions

Responsive AC (RESAC)

RESAC involves *sensing* and *acquisition* which is similar to the role of potential Capacity as noted by Zahra and George (2002), as shown in table 2. RESAC drives a firm to response (e.g.: Liao, Welsch, & Stoica, 2003) and sensemaking (Weick, 1995) the relevant stakeholder and its novel, valued, and benefiting competitive advantage knowledges for acquisition. It is worth mentioning, Knowledge acquires here not only the external knowledge (Lane & Lubatkin, 1998; Zahra & George, 2002), but also internal one. We extend the notions of Cohen and Levinthal's (1990). However, limited to relative different cognitive complexity level between the focus firm and its stakeholder, the focus firms can't guarantee to exploit the knowledge (Lane & Lubatkin, 1998).

Realized AC (REAAC)

REAAC involves *assimilation* (e. g.: Block, 1982; Cohen & Levinthal, 1990; Piaget, 1970) and *combination* (e.g.: Nonaka, 1994; Tsai, 2001) which approaches the real context of a firm, but very distinct notions to the past models, as shown in table 2. Specifically, we employ the

concept out of Piaget's theory and the seminal work of Cook and Brown (1999) for which redefines the concept of realized AC. Our suggestion is not only because of the Piaget's first postulate in 1977, noted, "Any scheme of assimilation tends to feed itself, that is, to incorporate outside elements compatible with its nature into itself.....but by itself does not imply the construction of novelties" (Block, 1982), but also because of several empirical researches show that combination is the key to exploit knowledge (Tsai, 2001). That is, a firm ends to knowledge acquire and starts to process knowledge, we would rather believe that the firm will firstly exploit their knowledge and process the combination procedure for earning its exploitation return.

Table 2: Dimensions of 3RsAC: the Reconceptualization of Components and Corresponding Roles

Dimensions	Components	Action/Competences	Citations
Sensing	-Social capital - Environmental dynamism - Strategic orientation	-CRM -CKM -Alignment activities	Liao, Welsch, & Stoica (2003); van den Bosch <i>et al.</i> (1999); Tseng(2010)
Acquisition	-Prior investments - Human capital - Relationsihp / Trust - Incentive structures	-Management recognition -Appropriability regime -SCM	Cohen & Levinthal (1990) ; Zahra & George (2002) ; Lane <i>et al.</i> (2006)
Assimilation	- Activity simplicity - Prior knowledge - Conginitive complexity - Learning quality	-Dominant logic -HRM practices -Knowledge transfer -Incentive structures	Lane <i>et al.</i> (2006) Zahra & George (2002); van den Bosch <i>et al.</i> (1999); Cohen & Levinthal (1990)
Combination	- Strategic flexibility -Exploitation	-Combinative capabilities -Knowledge characteristics - Incentive structures -Innovation communication	Nonaka(1994); Tsai (2001) Nonaka (1994) Cohen & Levinthal (1990)
Socilization	- Internalization - Exploration - Externaliztion	-Governance structure -Co-product -Value cocreation - Knowledge creation -Knowledge sharing	van den Bosch <i>et al.</i> (1999); Nonaka (1994); Liao, Welsch, & Stoica (2003)
Trnasformation	- Conversion - Implementation	-Alliance systems -Dyad / network knowledge transfer -Relatedness of organizations	Lane & Lubatkin (1998) ; Zahra & George (2002); van den Bosch <i>et al.</i> (1999); Lane <i>et al.</i> (2006) Nonaka(1994); Teece(1997); Teece <i>et al.</i> (2007)

Reconfigured AC (RECAC)

RECAC involves *socilization* (e. g. Nonaka, 1994) and *trnasformation* (Zahra & George, 2002), as shown in table 2. The couple capabilities with a role to improve the descreasingly declined competitive advantage. Based on Piaget's theory, accommodation's function will be driven if a firm occurs a relative AC issue (For details, see Lane and Lubatkin, 1998). Socialization helps firms to make both ends tacit knowledge transfer each other, thus reinforce or complement firm's knowledge base. Knowledge sharing is just like thousands of practices such as the value co-creation, strategic alliance, mass customization and so forth. On the other hand, transformation is about a firm to reshape its knowledge base or routines (Zahra & George, 2002), as Teece suggested in 2007, shift to or to create one, for which earns a sustained competitive advantage if existing firm without competition or it knowledge

base is too obsolete to rebuild. Transformation, that is, makes a firm to reconfigure its knowledge base and lead to explore and rebuild knowledge base which is distinct to the prior one.

5. CONCLUSION

We propose a three-construct-and-six-dimension model, named as 3Rs AC (3RsAC), consists of equilibrium among Responsive AC (RESAC), Realized AC (REAAC), and Reconfigured AC (RECAC). The equilibrium means that a firm achieved its knowledge acquire and process knowledge for which enhances its competitive advantage. 3RsAC is an atomic model which based on cognitive adaptation view and its underlying assumption takes a firm as active knowledge seeker to acquire stakeholder knowledge and process the relevant knowledge into valuable action for which achieves sustained competitive advantage.

Specifically, RESAC includes sensing and acquisition which enhance the firm's position of the knowledge base. Sensing and acquisition the valued knowledge from its relevant stakeholder is useful for the firm winning the sustained competitive advantage. The other two constructs mainly echo to Piaget's seminal works of cognitive adaptation theory. REAAC involves assimilation and combination which benefits a firm to transfer acquisition knowledge and earns the exploitation rents via the knowledge combination. Meanwhile, RECAC encompasses socialization and transformation will facilitate a firm to reshape or/ and reconfigure its knowledge base if the firm occurs so called relative AC issues for which help them to reinforce, complement or , if necessary, reconfigure their knowledge base for a sustained competitive advantage.

Present study provides fresh insight in five respects. First, 3RsAC is a precise and concise atomic model which offers a better understanding the relationship between the constructs on AC. Second, we bridging the gaps between the contexts of micro and macro, the conflicting viewpoints between competence based and human capital based. Third, 3RsAC is plausible and meaningful which offers researcher to obtain a benefit for discovering real facts especially on the researches of ambidextrous organizations. Four, 3RsAC is a driver to response their stakeholder which enhances acquisition of valued knowledge external and internal to the organization. The last, Five, 3RsAC leads the concept to multi-circle learning for which benefits organization performance especially in the turbulence circumstance.

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