



Cognitive complexity implications for research on sustainable competitive advantage

Shu-Ling Cheng^{a,*}, Hae-Ching Chang^b

^a Far East University, Department of Management Information Systems, 49, Jhonghua Road, Sinshih Township, Tainan County 744, Taiwan

^b National Cheng Kung University, Department of Business Administration, No. 1, Ta-Hsueh Road, Tainan 701, Taiwan

ARTICLE INFO

Article history:

Received 1 February 2009

Received in revised form 1 February 2009

Accepted 1 February 2009

Keywords:

Cognitive complexity

Testability

Measurement

ABSTRACT

Cognitive complexity of top managers gains increasing attention in the management field. Performance implication of cognitive complexity is an important one. This article clarifies several of the original points to reply to Huang's commentary. In particular, we comment on some issues of testability and measurement of cognitive complexity and internal/external related dimensions.

© 2009 Elsevier Inc. All rights reserved.

1. Introduction

We welcome Huang's response (Huang, 2009) to Cheng and Chang (2009). The intent in the article is to spur discussion about which specific forms of cognitive structures in cognitive strategic groups can help firms to sustain competitive advantage. We are pleased to have the opportunity to clarify several of the original points.

We first build on some important areas in the original article. These areas may provide the basis for improved understanding of the arguments between Huang's and the original articles. Next, we readdress the issues of the performance implications of cognitive complexity and perceived internal/external dimensions in light of Huang's comments. We clarify and extend the original remarks responding to his queries. Finally, we suggest some future research directions. Space limitations preclude the responding to each of Huang's queries. We therefore focus on those queries we deem most salient.

2. Review of important areas

Huang agrees with several important findings in the original article. The areas include (1) that the performance implications of cognitive complexity is helpful for practical application, (2) that identifying top managers' attention patterns toward internal/external dimensions in high-performing and low-performing groups can provide insight into performance-enhancing process, (3) that a clear

methodological picture for this type of research is particular beneficial. I briefly summarize the first two areas of the research as the basis upon which further comments can continue.

2.1. Performance implications of cognitive complexity of cognitive strategic groups

The question of how firms sustain competitive advantage is a central interest in the management field. The concept of cognitive strategic groups, utilizing managerial cognition of competition, gains prominence to explain performance differences among competing firms at the group level analysis since managerial cognition of competition influences the organizational strategic actions and subsequent performance (Andrews, 1971; Hodgkinson, 1997; Osborne et al., 2001). Top managers develop mental models to interpret their competitive environment (Porac et al., 1989), and these executives construct mental models of themes that allow qualitative comparison and clustering of companies within an industry (Osborne et al., 2001).

A few studies extend this line of research by examining the cognitive complexity of top managers in the strategic groups and assessing the relationship between the cognitive complexity and performance. Given the cognitive limitation of individual's information processing capability, top managers may need to focus their attention on some selective dimensions since they are unable to comprehensively evaluate all variables relevant to a decision (Hambrick and Abrahamson, 1995; Calori, Johnson, and Sarnin, 1994; Garg et al., 2003). Managers construct simplified mental models to make decisions (March and Simon, 1958). Such simplified mental models help them to deal with the challenges effectively (Miller, 1993). In contrast, several studies contend that firms with a complex orientation achieve superior performance (Ashby, 1956; McNamara et al., 2002; Neill and Rose, 2006). Similarly, Carley (1997) finds that high-performing groups have more concepts in their

* Corresponding author. Tel.: +44 886 6 5977873; fax: +44 886 6 5977600.
E-mail addresses: emily@cc.feu.edu.tw (S.-L. Cheng), chc5728@ms54.hinet.net (H.-C. Chang).

mental models than low-performing groups. To understand the implication of cognitive complexity, the study (Cheng and Chang, 2009) examines managerial cognition of firms with themes in the Taiwan semiconductor industry. Besides, the complexity is measured by the number of themes extracting from letters to shareholders. In line with Ashby's (1956) law of requisite variety and prior works, the study argues that in a highly competitive industry, top managers with a higher level of complexity are capable of holding an elaborate picture to guide an adaptive action, leading to a superior performance. The finding results support this view.

2.2. Relationship of attention patterns toward internal/external dimensions to performance

In addition to difference in the level of complexity in managerial cognition, the study also examines differences in top managers' attention patterns toward internal/external dimensions. Previous research concludes that top managers reveal relative emphasis on internal/external related dimensions. Various emphasis on internal/external related dimensions result in different performances (D'Aveni and MacMillan, 1990; Staw et al., 1981). The original study argues that top managers in high-performing groups of firms emphasize relatively more external related dimensions (e.g., customer need and product demand) than those in low-performing firms. The reasoning is that emphasizing internal related dimensions is usually insufficient to solve the severe environmental problems that firms confront. With a feasible empirical analysis, the study supports the argument.

3. Reply to queries

3.1. Cognitive complexity and performance: linear or curvilinear relationship?

Huang's first query is that: is an inverse U-shape relationship possible between the degrees of cognitive complexity of strategic groups and performance? With the cognitive limitation of information processing capability, there may be a curvilinear relationship between cognitive complexity and performance. Indeed, this argument is interesting but requires more empirical testing. Theoretically, top managers experience bounded rationality and can only include a finite number of dimensions in their cognition. However, few studies empirically test the argument. McNamara et al. (2002) empirically investigate the curvilinear relationship between cognitive complexity and performance using the data from banks in three U.S. cities. They use three variables to measure the complexity: the number of strategies identified by the managers, the number of competitors categorized by the managers, and the size of groups identified by top managers. The mean number of strategies, competitors, and size of groups are 5.1, 23.9, and 5.2, respectively. In their study, they find the positive relationship between the last two complexity variable and the negative relationship between the first one. Furthermore, they do not find an inverse U-shape relationship between complexity and performance with the first two measures of complexity.

Unlike their study, the original study examines the complexity in terms of the number of themes extracting from letters to shareholders. The study specifies the level of complexity is only 2, 1 and 0, for cognitively complex, simple and non-focus strategic groups, respectively. Thus, the testability of a curvilinear relationship between complexity and performance is limited with the scarce level of the complexity in the context of our study. However, other studies under different contexts may find more themes which can increase the complex level of managerial cognition. In such a condition, integrating the moderate complexity perspective into the examination of the effect of cognitive complexity on performance will enhance understanding of performance implication of cognitive complexity.

3.2. Perceived internal/external related dimensions and performance: measures and testability argument

In Huang's second query, he asserts the questions about why *product* is categorized as a perceived external related dimension rather than an internal related dimension, and how to define and measure the perceived internal/external ones. Besides, he also addresses the issue of testing whether there is a linear relationship between the multitude of perceived external related dimensions and performance, describe below.

3.2.1. Product: internal or external dimension?

Duncan (1972) defines the relevant dimensions that are outside the boundary of an organization as the external related ones. The original study categorizes *product* as the external related dimension because it refers to product demand which is inferred from the related keywords of *product* listed in Table 2 (Cheng and Chang, 2009). Similarly, D'Aveni and MacMillan (1990) define product demand growth as an external related dimension. Based on the concept of *product* in the study and Duncan's (1972) definition, *product* in our study is conceived as an external related dimension.

3.2.2. Perceived internal/external related dimensions: how to measure?

Unlike our concept of *product*, Neill and Rose (2006) define product orientation as an internal related dimension because their concept of product emphasizes the product quality and efficiency of value offerings. Thus, there may be a need to develop the measures of internal/external related dimensions. A number of studies provide the examples of how to measure perceived internal/external dimensions. For instance, Bourgeois (1980) conceptualizes external environment as task and general environment. The task environment includes those dimensions of the environment that have direct transactions with the firm such as customer, competitor, and suppliers while the general environment includes those dimensions of the environment that affect the firm indirectly such as social, demographic, and economic dimensions. Daft, Sormunen, and Parks (1988) conduct an empirical study to examine the environmental dimensions by using managerial impression. Also, D'Aveni and MacMillan (1990) define internal environment as relevant dimensions related to owners, employees, and top managers, and external environment as relevant dimensions related to customers, general economic factors affecting demand, creditors, and suppliers. Furthermore, Garg et al. (2003) identify two dimensions (e.g., efficiency and innovation) as relevant domains of the internal environment from five dimensions (e.g., cost, operation, product R&D, marketing, and finance). Moreover, Nadkarni and Barr (2008) describe that managerial attention can be directed toward the external environment (e.g., competition, regulations, macroeconomic factors, technology) or internal environment (e.g., organizational structures, resources, policies and procedures, communication channels). Nevertheless, to better capture the concept of internal/external related dimensions in different contexts of firms or industry, researchers can employ the methods of the in-depth open-ended interviews (Daft et al., 1988; Calori et al., 1994) or questionnaire derived through a thorough analysis of relevant literature combined with experts' opinion (Dess and Davis, 1984; Garg et al., 2003) to elaborate their results. Some researchers note the limitations in using manager's reports through either interviews or questionnaire (Hodgkinson, 2002; Thompson, 1967; McNamara, Deephouse, and Luce, 2003). However, the use of multiple measures can minimize these limitations, especially where results from different methods converge.

3.3. A linear relationship of perceived internal/external related dimensions to performance: how to test?

Huang raises the query whether there is a linear relationship between perceived internal/external related dimensions and performance. A few studies provide the examples to test the query. For

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات