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TOWARD RESEARCH-PRACTICE BALANCING IN MANAGEMENT: THE YIN-YANG METHOD FOR OPEN-ENDED AND OPEN-MINDED RESEARCH

Peter Ping Li

ABSTRACT

Purpose – The author introduces the Eastern philosophy of wisdom, especially its epistemology of Yin-Yang Balancing as the Eastern cognitive frame, to shed light on the debates over the distinction and integration between research and practice as well as between qualitative and quantitative methods so as to solve the problems of relevance-rigor gap as well as complexity-simplicity gap. The author also applies the frame of Yin-Yang Balancing to the development of a novel method of case study.

Methodology/Approach – This is a conceptual article.

Central theme – The Eastern philosophy of wisdom is better at an open-minded exploration of open-ended issues by emphasizing relevance and complexity, while the Western philosophy of science is better at a closed-minded exploitation of close-ended issues by emphasizing rigor and
simplicity. A geocentric integration of both Eastern and Western philosophies is needed.

Research and practical implications – Management research is far behind the need for theoretical insights into practical solutions largely due to the increasing gaps between relevance and rigor as well as between complex problems and simple solutions. The root cause of the two gaps lies in the overreliance on the Western philosophy of science, so a new light can be found in the Eastern philosophy of wisdom, and the ultimate solution is a geocentric integration of Eastern and Western philosophies. A novel method of case study can be built by applying the Eastern philosophy.

Originality/Value – The author highlights the urgent needs for the Eastern philosophy of wisdom and its integration with the Western philosophy of science toward a geocentric meta-paradigm. As a specific application of the geocentric meta-paradigm, the author proposes a novel method of case study called Yin-Yang Method.

Keywords: Yin-Yang Balancing; Yin-Yang Method; grounded theory; case study; geocentric integration; relevance-rigor; complexity-simplicity

It is generally accepted that the field of management research has not kept up with the practical needs for insights into the complex nature of organizational management. The serious lag of research behind practice has two salient causes. First, management research has been increasingly irrelevant to practice (Lorsch, 2009; Miner, 1984; Pfeffer, 2007). The problem is so severe that some scholars even believe that the rigor-relevance gap in management research is “unbridgeable” (also see Daft & Lewin, 2008; e.g., Kieser & Leiner, 2009; Weick, 2001). However, others remain hopeful for the possible integration between relevance and rigor in management research (e.g., Li, 2007; Starkey & Madan, 2001). Second, management research has been increasingly fragmented so that it cannot address the inherently complex issues of management practice that require an interdisciplinary and multi-frame integration (see Suddaby, Hardy, & Huy, 2011 for a review). However, management research has not been responding to the repeated calls for closing both relevance-rigor and complexity-simplicity gaps. The lack of response is arguably not because of the lack of motive or effort, but largely due to the lack of ability due to the orthodox methodology of logical analysis rooted in the orthodox epistemology of
rational reductionism and the orthodox ontology of realism-idealism separation in the West (Li, 1998). In particular, the either/or logic (i.e., the epistemology of dualism or dichotomy) in the West has generated the hyper-specialized knowledge that has become increasingly impermeable boundaries between all disciplines (Morin, 2008), which forces management research to confine itself to the narrow domain where the old light of the Western methodology can reach rather than where the key to the relevant and complex knowledge is lost. The inherently and increasingly holistic and dynamic reality is forcing us to look for our “lost key” in the right place with new light away from the wrong place under the old light from the West. The right place is where the East and the West meet, while the new light is a geocentric (the West-East balancing) meta-paradigm. It is imperative that we extend beyond the prevailing focus on the West to the East and the ultimately geocentric balancing between the West and the East. The greatest challenge is to achieve the geocentric integration between the West and the East at the fundamental level of philosophy.

Fortunately, the hope is that the Eastern philosophy of wisdom has the potential to facilitate this geocentric integration. In particular, it has the capacity to reframe ambiguity from a negative problem (inconsistency) to a positive solution (completeness) as well as balance logical analysis with intuitive imagination. From the outset, I want to make it explicit that the East refers to the regions traditionally influenced by the ancient Chinese civilization, while the West refers to the regions traditionally influenced by the ancient Greek civilization (Li, in press); “Chinese” and “Eastern” will be used interchangeably. I recognize that neither the East nor the West is a homogenous entity given their rich internal diversity (Chen & Miller, 2011), but they can be contrasted as two major distinctive groups. I also want to make it explicit that the philosophies I focus on are the orthodoxies in the West and the East (Liang, 1921), even though I recognize the rich internal diversity within the Eastern or Western philosophies. Finally, I focus on the major distinctions between the West and the East despite the similarities in many aspects, especially the distinctions in the ontology, epistemology, and methodology between the West and the East, including the dualism versus duality as well as rationality versus intuition (Liang, 1921).

The purpose of this chapter is twofold: (1) to explore the geocentric meta-paradigm of creative cognition and (2) to apply it to the relevance-rigor debate and case study method. The geocentric meta-paradigm can start from complexity (rooted in the Eastern ontology of “Tao”) to ambiguity (rooted in the Eastern epistemology of Yin-Yang Balancing), and finally to metaphor (rooted in the Eastern methodology of “Wu”). Creative cognition
is my main focus because it is the biggest puzzle, and the geocentric meta-paradigm of creative cognition can incorporate the Western philosophy of science toward the ultimate geocentric meta-paradigm of general cognition. The geocentric meta-paradigm of general cognition can solve the relevance-rigor and the complexity-simplicity gaps in research in general and in management research in particular. The rest of this chapter is organized into five sessions. First, I discuss the relevance-rigor gap and its related issues, including the complexity-simplicity gap and debate. Second, I introduce the Eastern philosophy of wisdom, especially its epistemological frame of Yin-Yang Balancing and its methodology of “Wu,” and further develop it into the geocentric meta-paradigm. Third, I apply the geocentric meta-paradigm to the relevance-rigor debate. Fourth, I further apply the geocentric meta-paradigm to a new version of case study, which I call Yin-Yang Method, to close the relevance-rigor and complexity-simplicity gaps. Finally, I conclude with a brief discussion about the future research agenda.

TWO MAJOR GAPS IN MANAGEMENT RESEARCH

The Imperative for Engaged Scholarship

It has long been argued that management research must have an integration between relevance and rigor, but all previous attempts to reorient management research from the tendency to emphasize rigor to a proper balance between relevance and rigor have generally failed (Daft & Lewin, 1990, 2008, for Organization Science; Daft, 1980; Palmer, 2006, for Administrative Science Quarterly). Labeled differently, as “parochialism” (March, 2005); “tribalism” (Gulati, 2007); “entropy” (Simon, 1976), or “autopoiesis” (Luhmann, 2005), these failures share the same theme of a reductionist and closed system as a disengaged paradigm (Kuhn, 1962). It is the trend toward such a paradigm that has resulted in the rigor-relevance gap. The rigor-relevance gap is caused not only by the inherent difficulty of bridging academic and practical agendas (Kieser & Leiner, 2009), but also by the self-imposed epistemological frame of Aristotle’s either/or logic (Li, 1998, 2008; also see Morin, 2008). We have to move from the disconnected parochialism to engaged scholarship (Boyer, 1990, 1996; Cummings, 2007; Van de Ven & Johnson, 2006). For engaged scholarship, we must extend beyond the prevailing focus on any single narrow discipline (Cheng, Henisz, Roth & Swaminathan, 2009; Zahra & Newey, 2009), and we also have to overcome the prevailing focus on the static content (Martin & Eisenhardt,
2010; Van de Ven & Huber, 1990). Given the complex nature of management practice, it is imperative to adopt a truly interdisciplinary and process-oriented agenda. This new research orientation, however, will not be easy because it requires a new paradigm (Li, in press; Pettigrew, 2001; Van de Ven & Huber, 1990).

The Debates over Relevance and Rigor as Complementary or Conflicting

The criticism of the practical irrelevance of management research can be divided roughly into three key areas. First, some argue that the content of academic research is too theoretical and method-driven, thus too abstract for practitioners to apply, and most of the research questions are too narrow and trivial to managerial practice (e.g., Starkey & Madan, 2001). Second, some claim that the problem is not so much about research irrelevance as about the dissimilation failure due to the communication style of research as too academic, obscure, inaccessible, and boring (e.g., Leisenring & Johnson, 1994; Rynes, Bartunek, & Daft, 2001). Third, the strongest criticism comes from those who believe that the problem is not so much about research being irrelevant as about its negative relevance. Ghoshal and Moran (1996) argued that some economic theories are harmful and negative to practice. Ghoshal (2005) went further to accuse management research of generating many bad theories that it is destroying good management practices (also see Pfeffer, 2005). In addition, Mintzberg (2004) lamented that business education in the United States had a negative effect not only on management practices in business organizations (also see Bennis & O’Toole, 2005; Pfeffer & Fong, 2002), but also in nonbusiness institutions.

In contrast, some deny the charge of irrelevance. Their defense can also be grouped into three areas. First, some argue that there is no problem of irrelevance. For instance, Shrivastava (1987) mentioned the relative rigor and practical usefulness of scholarly publications within 23 research themes in the field of strategic management as evidence for the relevance of research. In the field of accounting, Leisenring and Johnson (1994) claimed that much research is clearly relevant to practice, even though many practitioners do not see it that way. Hitt (1998, p. 222) went further to assert that “we do good research in management,” so “we should make no apologies for and accept no compromises on the quality of management research, regardless of the criticisms we receive from within or outside the
Academy.” This line of defense is widely shared (e.g., Baldridge, Floyd, & Markoczy, 2004; Oliver, 2010; Palmer, Dick & Freiburger, 2009).

Second, others claim that it is almost impossible to balance rigor with relevance because of their inherent conflict as trade-off, dilemma or paradox (e.g., Daft & Lewin, 2008; Kieser & Leiner, 2009). For instance, Daft and Lewin (2008) admitted that their original ideal vision for Organization Science to be both rigorous and relevant was unrealistic and naive since few of the articles published in academic journals would be cited in the practitioner-oriented management journals. Similarly, Palmer (2006, p. 550) also admitted that Administrative Science Quarterly “does not give voice to much work motivated by the desire to develop knowledge that can improve managerial or other practices.” Further, Van de Ven and Johnson (2006) pointed out that the knowledge essential to professional practice is not what scholars regard as fundamental. The academic communities normally consider basic research as having higher status than applied research. Hence, when a potential or real conflict between relevance and rigor occurs, most scholars will favor academic rigor at the expense of practical relevance. The differences in value between academic and practical communities cannot be easily bridged (Kieser & Leiner, 2009; Shrivastava & Mitroff, 1984).

Third, still others believe that it is unnecessary, and even dangerous, to overemphasize practical relevance (e.g., Aldag, 1997; Huff, 2000; Weick, 2001). Aldag (1997, p. 8) maintained that “management research is already quite relevant” so that “basic research and research that appears somehow ‘artificial’ should not be sacrificed on the altar of relevance.” He cautioned that “we should not do in ways that jeopardize basic research or that amount to chasing fads” (Aldag, 1997, p. 9; also see Weick, 2001). Also, March and Reed agreed that “the recent headlong pursuit of immediate relevance in business schools and in management research is wrong” because “the main advantage of an academic institution can be found in academic research and its contribution to knowledge. It is not in trying to identify factors affecting organizational performance or in trying to develop managerial technology. It is in raising fundamental issues and advancing knowledge about fundamental processes affecting management” (Huff, 2000, p. 55). Consistent with the above view, Daft and Lewin (2008) suggested that academic journals should first and foremost serve the interest of scholars rather than practitioners.

Scholars have proposed various recommendations on how to remedy the problem of irrelevance contingent upon where they stand in the debates. While some focus on the relevance-rigor gap at the stage of knowledge
 generation before knowledge dissemination, others emphasize the gap at the stage of knowledge dissemination after knowledge generation (Shapiro, Kirkman, & Courtney, 2007). Focusing on knowledge generation, some recommend that more relevant knowledge be generated via a closer cooperation between scholars and practitioners (e.g., Pettigrew, 2001; Starkey & Madan, 2001; Van de Ven & Johnson, 2006). Also focusing on knowledge generation, others recommend the generation of relevant knowledge in a double-loop process with both relevance and rigor loops for the ambidextrous or bi-competent scholarship to span the boundaries between research and practice (e.g., Kieser & Leiner, 2009; Markides, 2007; Vermeulen, 2005, 2007). Further, still others caution against too much emphasis on practical relevance; they recommend a continued commitment to rigorous basic research (e.g., Daft & Lewin, 2008; Huff, 2000; Weick, 2001). In contrast, with a primary focus on knowledge dissemination, some recommend improving the means of transferring academic ideas to practitioners (e.g., Leisenring and Johnson, 1994; Rynes et al., 2001). Finally, some emphasize both knowledge generation and dissemination. Aldag (1997) proposed a close collaboration between scholars and practitioners for both knowledge generation and knowledge dissemination (also see Lorsch, 2009).

Paradoxically, the above views are both valid and invalid in different aspects at different times to different degrees. This is because all of them are necessary as parts of a complete whole for the relevance-rigor balancing, but they are inconsistent if they are integrated into a complete whole. This completeness-consistency paradox is known as Gödel Theorems (Van Heijenoort, 1963). To settle the above debates, it is imperative to adopt a new frame consisting of its holistic, dynamic and duality tenets under the premise that the required balance between relevance and rigor can be readily achieved if we differentiate as well as integrate the redefined notions of relevance and rigor as a duality.

THE EASTERN PHILOSOPHY OF WISDOM

Now I turn to the new frame in terms of the Eastern philosophy of wisdom and the geocentric meta-paradigm of creative cognition so as to provide the philosophical foundations for incorporating the Western research on creativity and the Western philosophy of science. The central theme here is that the Eastern philosophy of wisdom is primarily concerned with the creation of novel knowledge as open-ended and open-minded exploration in
problem solving and decision making, in contrast to the Western philosophy of science for the *evaluation* of the knowledge as close-ended and close-minded exploitation; further, because creation and evaluation are both needed for problem solving and decision making, the West has to meet the East toward the geocentric integration of both Western and Eastern philosophies and paradigms (cf. Liang, 1921).

*The Need for the Eastern Philosophy of Wisdom*

James March summarized the core features of the Western philosophy of science (1982, pp. 69–71):

> Our cultural ideas of intelligence and our theories of choice ... share three conspicuous interrelated ideas: ... the *pre-existence of purpose* ... the *necessity of consistency* ... the *primacy of rationality* .... These ideas are obviously deeply imbedded in the culture. Their roots extend into ideas that have conditioned much of modern western history and interpretations of that history. Their general acceptance is probably highly correlated with the permeation of rationalism and individualism into the style of thinking within the culture. The ideas are even more obviously imbedded in modern theories of choice.

Despite its significant historical contributions, the Western philosophy of science has its share of fatal limitations. As Morin (2008, p. 31), one of the most prominent contemporary philosophers in the West, pointed out, the Western philosophy of science in the form of logical positivism “could not avoid playing the role of an epistemological policeman forbidding us to look precisely where we must look today, toward the uncertain, the ambiguous, and the contradictory.” Hence, “Instead of seeking reconcile intuition with analysis, we have been content to sacrifice one of the two, and as analysis must remain impeccable, we have decided against intuition” (Poincaré, 1913, p. 52). Morin (2008, pp. 2–3) forcefully criticized that the Western philosophy of science as the old “light” had resulted in “a new ignorance related to the development of science itself,” and “a new blindness about the deteriorated use of reason” due to “the principles of disjunction, reduction, and abstraction” as the “paradigm of simplification,” thus “this paradigm has dominated the adventure of Western thought since the seventeenth century.” Morin called for a new paradigm of complexity with the “disturbing traits of a mess, of the inextricable, of disorder, of ambiguity, of uncertainty” to address “the paradox of the one and the many” (2008, p. 33–34), which will go beyond the “either/or” logic toward the “dialogic” that appreciates paradoxes as well as “imagination, illumination, and creativity.” In other words, we have to go beyond the Western philosophy
of science rooted in the old *mind-as-computer* metaphor toward a new metaphor of *mind-as-organism* as open-ended, open-minded, self-organized, spontaneous, flexible, imaginative, complex, ambiguous, and intuitive (Miller, 1989; Runco, 2007; Stacey, 1996).

This new metaphor can be readily found in the East, to be more precisely, right in the ancient Chinese philosophy of wisdom. Despite its great potential, the Chinese philosophy will remain foreign to the West because of the close-ended and close-minded Western philosophy of science. “So long as the conscious intellect is frantically trying to clutch the world in its net of abstractions, and to insist that life be bound and fitted to its rigid categories, the mood of Taoism will remain incomprehensible; and the intellect will wear itself out” (Watt, 1957, p. 19). However, “if we seek a philosophical treatment of the notion of creativity unsullied by the demands of either scientific or theological rationality, we must look beyond the Whiteheadian system to the thought of Taoist China” (Hall, 1978, p. 274). In particular, we have to reevaluate the roles of intuition and subconscious process due to their inherent connection to creativity in the sense that “to reach the state of no-thought, according to Taoist, means to reach the realm of creativity” (Chang, 1970, p. 207), especially the direct interplay between intuition and logic, the conscious and the subconscious, as well as science and art as dualities beyond the traps of separating the opposites into absolute dichotomies or dualisms (see Daston, 1998 for a review on the science-art split).

We need to understand the underlying reasons why the ancient Chinese chose to emphasize the holistic and dynamic natures of complex phenomena or issues by embracing contrary or contradictory elements as the opposites-in-unity, in contrast to the selection by the ancient Greeks to emphasize the reductionistic and static features of simplified phenomena or issues by accepting compatible elements (Li, 1998, 2008, 2011, 2012, in press; see Nisbett, 2003). In other words, the Chinese epistemological frame of Yin-Yang Balancing integrates “completeness” with “consistency” with the bigger emphasis on the former than the latter, but the Western either/or logic advocates “consistency” exclusively at the expense of “completeness.” This critical distinction is rooted in the Gödel Theorems, which posit that consistency and completeness constitute a real paradox, so a complete statement must be inconsistent, and a consistent statement must be incomplete (van Heijenoort, 1963; cf. Hofstadter, 1979). However, completeness and consistency can be both achieved at the same time and in the same aspect when we reframe the two as partially compatible and partially conflicting, thus a shift from paradox to duality as opposites-in-unity.
according to the frame of Yin-Yang Balancing (Li, 1998, 2008, in press). Rather than being absolute, both consistency and completeness will be treated as relative by the frame of Yin-Yang Balancing, so the inevitability and desirability of ambiguity will be taken as the key implications of Gödel Theorems. The frame of *Yin-Yang Balancing* can explain the Gödel Theorems with its three core tenets (also see Chen, 2008; Li, 1998, 2008, in press): (1) *holistic tenet* (any complex phenomenon is a balance of interdependent components for its multidimensional comprehensive “spatial” content); (2) *dynamic tenet* (any complex phenomenon is a balance of interactive components for its multiphase nonlinear temporal process); and (3) *duality tenet* (any complex phenomenon is a balance of contrary yet complementary components as opposites-as-unity or duality with both complementary synergy and conflicting trade-off).

The choice of balancing consistency with completeness by the ancient Chinese through the long history of China is deeply rooted in the ancient Chinese philosophical system with its unique ontology, epistemology, and methodology. First, the ancient Chinese embraced “Tao” in terms of “Heaven-Earth-Human Harmony” as the shared ontology for all Chinese philosophies. “Tao” refers to a complex world that is both objective and subjective in balance rather than being separated, and the macro-level context is integrated with the micro-level object rather than being separated (e.g., the Chinese notion of “field”); by symbolizing the “way,” “Tao” also refers to the dynamic process of self-becoming in the context of chaos (Hall, 1978). This Chinese ontology differs from the dominant ontology in the West in terms of either idealism or realism as separated and either context or object as separated. Second, the ancient Chinese embraced the frame of Yin-Yang Balancing as the shared epistemology for all philosophies in China. The frame of Yin-Yang Balancing consists of the three core tenets of holistic content, dynamic process, and duality integration. This Chinese epistemology as “either/and” (recognizing the distinction and link between the opposites and balancing their conflicting and complementary tendencies) differs categorically from rational reductionism as the epistemology in the West both in the form of Aristotle’s either/or logic and the form of Hegel’s “both/or” dialectics (initially tolerating but ultimately denying contradictions) (see Li, 2008, in press, for reviews). In particular, the frame of Yin-Yang Balancing will endorse ambiguity as inevitable and desirable for cognition in all complex contexts. Third, the ancient Chinese embraced “Wu” (i.e., intuitive imagination) as the shared methodology for all philosophies in China. Intuitive imagination refers to the process and outcome of creative cognition, with *insight* as the outcome and *intuition* as the process.
Being the core process of creative cognition, intuition contains its gradual and sudden subprocesses as well as its conscious and subconscious subprocesses. Specifically, intuition involves metaphor (via imagination and imagery) as the core mechanism in the process.

The Chinese notions of intuition and insight differ from the Western notions of the two as either outcomes or processes and either separated or mixed (cf. Bastick, 1982; Dane & Pratt, 2007; Policastro, 1995). This distinction goes beyond the recent effort to differentiate between creative intuition (sudden insight from incubation) and routine intuition (instant judgment without insight and/or incubation) (e.g., Crossan, Lane, & White, 1999; Dane & Pratt, 2009; Miller, 1996; Miller & Ireland, 2005; Monsay, 2007; Runco, 2007). Specifically, “Wu” encompasses the content and process of intuitive imagination with metaphor as its mechanism for creative cognition. Similar to analogy, metaphor is a type of inference via the similarities and differences in certain properties between entities not causally linked (Gentner & Bowdle, 2008; Lakoff & Johnson, 1999). While metaphor may be the most ancient mode of cognition in many cultures (Lloyd, 2004), it remains central to the Chinese today (Gao, 1994; Zhou, 2010). The Chinese methodology of “Wu” as intuitive imagination (via metaphor from the known to the unknown) is contrary yet complementary to the Western methodology of logical analysis (via deduction as well as induction), with the two being a duality. This nature of “Wu” is vividly illustrated by the allegory from Chuang Tzu (369–286 BC) (Chuang, 1962), one of the founding fathers of Taoism:

The Ruler of the Northern Ocean was Shu (Heedless), the Ruler of the Southern Ocean was Hu (Sudden), and the Ruler of the Center was Chaos. Shu and Hu were continually meeting in the land of Chaos, who treated them very well. They consulted together how they might repay his kindness, and said, “Men all have seven orifices for the purpose of seeing, hearing, eating, and breathing, while this (poor) Ruler alone has not one. Let us try and make them for him.” Accordingly they dug one orifice in him every day; and at the end of the seven days Chaos died.

The above Chinese ontology, epistemology, and methodology constitute the Eastern philosophy of wisdom for balancing completeness with consistency, in contrast to the overemphasis on consistency at the expense of completeness by the Western philosophy of science. I refer to wisdom as the higher order insights into deep and broad issues in contrast to the lower order knowledge about superficial and specific issues (cf. Takahashi & Overton, 2005). I emphasize the “emergence” quality: Wisdom derives from, but cannot be reduced to, knowledge. The West embraces logical analysis as the methodology of science, while the East seeks a balance between science
and art toward an integrative methodology of “Wu.” If we apply the Eastern philosophy of wisdom, especially the frame of Yin-Yang Balancing, to the notion of ambiguity, we can gain insights into how to reframe ambiguity from a negative problem to a positive solution. In particular, the Eastern philosophy of wisdom treats ambiguity as inevitable and desirable for creativity, especially in the case of creative problem solving and decision making in the context of high complexity. Instead of referring to a large quantity of unrelated and static elements, complexity refers a holistic and dynamic (ill-structured) set of qualitatively diverse (often incompatible) yet interrelated elements that require multiple and integrated frames of reference, thus consistent with the duality of diversity-in-unity, in contrast to the notion of “complicated” referring to the quantitative (Byers, 2007; cf. Morin, 2008). Even though both are related to the incompleteness in knowledge or imperfect knowability, I differentiate between complexity as the cause and uncertainty as the effect (cf. Walker et al., 2003). Further, I take problem solving and decision making as the core of cognition, but the former (i.e., framing problems and finding solutions) differs slightly from the latter (i.e., evaluating options and making choices) (Simon et al., 1987). Finally, “Wu” reframes science and art as a duality, with science being a balance between science as the dominant and art as the complement (Liang, 1921). It is worth noting that the Chinese notion of “Wu” is consistent with the Western notions of tacit personal knowledge (Polanyi, 1958) and reflective practice (Schön, 1983) in the sense that “Wu” may be the methodology for them.

To fully understand the unique character of the Eastern philosophy of wisdom, it is imperative to highlight the inherent link between Zen (which is the Chinese version of Buddhism as “one of the most wonderful blossoms of the Chinese spirit”; Jung, 1964, p. 12) and the trilogy of the Eastern philosophy of wisdom (i.e., “Tao,” Yin-Yang Balancing, and “Wu”). In other words, the trilogy is vividly reflected in the practice of Zen, especially “Wu” as “enlightenment.” “Wu” can be facilitated by the Zen method of koan in the forms of paradoxical questions, expressions, and actions initiated by the Zen masters. The practice of Zen illustrates the distinctions between the Western philosophy of science and the Eastern philosophy of wisdom. While “logic is the most characteristic feature of Western thought,” “the East is synthetic in its method of reasoning; it does not care so much for the elaboration of particulars as for a comprehensive grasp of the whole, and this intuitively,” so “the Eastern mind … is necessarily vague and indefinite” (also see Li, 2008, in press; Suzuki, 1964, p. 35; Takahashi & Overton, 2005). Jung (1964, pp. 20–22) also identified the inherent
links between complexity, ambiguity, and unconsciousness with their shared duality of diversity-in-unity for completeness, which conscious thinking cannot effectively deliver (also see Byers, 2007; Hofstadter, 1979; Miller, 1989):

The *koans* … are of such great variety, such ambiguity, and above all such overwhelming paradox, that even an expert is completely in the dark as to what may emerge as a suitable solution … Since no logical succession can ever be proved, it is to be supposed that the *koan* method lays not the smallest restriction upon the freedom of the spiritual occurrences, and that the final result therefore comes from nothing but the *individual predisposition* of the initiate. The complete destruction of the rational intellect aimed at in the training creates an almost perfect lack of supposition of the consciousness. Conscious supposition is thereby excluded as far as possible, but not unconscious supposition; that is, the existing but unperceived psychological disposition, which is anything but emptiness and lack of supposition … The world of consciousness is inevitably a world full of restrictions, of walls blocking the way. It is of necessity always one-sided, resulting from the essence of consciousness. No consciousness can harbor more than a very small number of simultaneous conceptions. All else must lie in shadow, withdrawn from sight. To increase the simultaneous content creates immediately a dimming of consciousness; confusion, in fact, to the point of disorientation … The unconscious is an unlimpsable completeness of all subliminal psychic factors, a ‘total exhibition’ of potential nature. It constitutes the entire disposition from which consciousness takes fragments from time to time.

**Ambiguity as Open-Ended Multi-Frame Integration**

I now turn to the potential contribution of adopting the Eastern frame of Yin-Yang Balancing as “either/and” (fully recognizing inherent inconsistency and contradiction but never removing them by separating them spatially in content or temporally in process) in contrast to Aristotle’s either/or logic and Hegel’s “both/or” (initially tolerating inconsistency and contradiction but ultimately solving them) (Li, in press). In the Western tradition, ambiguity refers to the status of a single concept or statement with multiple apparently unrelated meanings or interpretations, thus a problem of inconsistency (Atherton, 1993). March (1994), referring to ambiguity as “a lack of clarity or consistency in reality, causality, or intentionality” (p. 178), pointed out that “neither rational theories of choice nor rule-following theories of identity fulfillment deal particularly well with ambiguity. The contradictions, inconsistencies, and fuzziness of reality, preferences, and identities are largely ignored” (p. 192). However, the Chinese tradition has embraced ambiguity as inevitable and desirable (Gao, 1994; Yu, 2009). Ambiguity can be central to explaining complex issues if it is reframed as the multi-frame integration toward an open-ended
completeness, rather than as fuzziness within a single frame toward a close-ended inconsistency (generally assumed in the West). The positive view of ambiguity is consistent with March’s (1994, p. 179) insight that “ambiguity may be used to augment understanding through imagination.” The tie between complexity and ambiguity can be vividly illustrated by the story about the elephant and blind men. The elephant is complex in the sense that it consists of multiple parts that require multiple frames and their final integration for a holistic picture of the elephant. Hence, the link between complexity and ambiguity can be best captured by the shared duality of diversity-in-unity for the completeness-consistency balancing (Byers, 2007; cf. Klinke & Renn, 2002; Weick, 1995). In a general sense, I conceptualize complexity as ontological in nature, while ambiguity as epistemological in nature, thus related to two distinctive types of uncertainty: one as ontological and the other as epistemological (cf. Walker et al., 2003).

There are several reasons for the positive perspective on ambiguity. First, a complex issue or phenomenon requires multiple frames (multidisciplinary in academic terms) to capture its diverse components or dimensions. Second, as the integral parts of the issue or phenomenon, the diverse components or dimensions, as captured by the multiple frames, require an integrative framework so as to reconstruct the unity (interdisciplinary in academic terms). Third, given the tendency of diverse components or dimensions toward inconsistency and even contradiction in a complex issue or phenomenon, ambiguity in the form of inconsistency and even contradiction between multiple frames will inevitably occur when the multiple frames are applied to the same phenomenon or issue without an integrative framework. In other words, it is the lack of an integrative framework for multiple frames that leads to the reframed notion of ambiguity in terms of perceiving a complex issue or phenomenon from multiple perspectives. In this sense, we name this new notion as multi-frame ambiguity to truly capture complexity as the nature of multidimensional world, in contrast to the old notion as single-frame ambiguity (i.e., fuzziness within the same perspective). Fourth, an integrative framework of multiple frames is impossible if we rely only on Aristotle’s either/or logic because that logic denies and rejects any inconsistency and contradiction between multiple frames. This problem is saliently reflected in the exclusive emphasis on consistency at the expense of completeness in the methodology of logical analysis. In addition, the only alternative in the West, i.e., Hegel’s “both/or” dialectics, also fails to accept the permanent co-existence of inconsistencies and contradictions because Hegel’s dialectics seeks to ultimately solve inconsistency and contradiction via “sublation.” “Sublation” seeks to retain
the complementary elements but remove the conflicting elements. Consequently, only the either/and frame of Yin-Yang Balancing has the unique capacity to appreciate the inevitability and desirability of inconsistent and even contradictory factors as not only partly conflicting but also partly complementary, so each pair of opposites can be reframed into a duality in terms of opposites-in-unity (Li, 2008, in press). In this sense, the frame of Yin-Yang Balancing is most effective in explaining ambiguity as the duality of diversity-in-unity. This is consistent with Einstein’s relativity theory and Bohr’s principle of complementarity for the wave-particle duality in the sense that ambiguity is inevitable and desirable because any complex phenomenon will be subject to multiple interpretations; this is similar to the cases of zero, infinity, and randomness in mathematics (Byers, 2007). Ambiguity can be well illustrated by the vase/face illusion for the reversibility of background and figure, consistent with the frame of Yin-Yang Balancing and related to the science-art balancing. This is related to the notion of tacit knowledge in two aspects (Polanyi, 1958). First, tacit knowledge is ambiguous in nature because tacit knowledge is subject to multiple equally valid explanations. Second, all knowledge is both tacit and explicit as a duality rather than the assumed separation and conversion between tacit and explicit knowledge. This is similar to the notion of reflective practice (Schön, 1983).

The above reframing of ambiguity is consistent with the widely accepted notion of ill-structured or ill-defined problem, which, in turn, is directly tied to creativity. A problem is termed well structured when the various components of the problem are well specified and are known to the solver. In contrast, ill-structured problems are those in which the givens, the goal, and the constraints are not specified or known (Simon, 1973). Newell, Shaw, and Simon (1962) proposed that a creative act is one of solving an ill-defined problem, where the solvers have to define the problem for themselves and in which they have to “fill in the gaps” of the problem with unique knowledge. Each solver’s solution will be unique because it reflects the solver’s own unique knowledge and value (Hayes, 1981). Creativity here refers to “a special class of problem solving activity characterized by novelty, unconventionality, persistence and difficulty in problem formulation” (Newell et al., 1962, p. 66). What is critical to my argument about ambiguity is its unique role in the process of solving ill-structured problems. The literature on creativity has many references to the role of ambiguity in the creative process (e.g., Finke, Ward & Smith, 1992; Perkins, 1984), and two points are emphasized (Voss & Means, 1989). First, creative individuals tend to have high tolerance for ambiguity (Amabile, 1983; Rothenberg,
Second, creative solutions can occur as the results of resolving ambiguities (Bruner, 1962). The two points suggest that creativity will benefit from ambiguity as a triggering mechanism in the process of creativity, consistent with the perspective that creative cognition is dialectical in nature (Bassaches, 1984). To a large extent, the real challenge of insight problems lies in the nature of multisource difficulty inherent in insight rather than the often assumed single cause of difficulty (Kershaw & Ohlsson, 2004), consistent with the notion of multi-frame ambiguity as well as the frame of Yin-Yang Balancing.

Further, a critical aspect of ambiguity is that there are multiple sets of constraints that must be dealt with, and the solver must reframe the problem in a way that may reject some of the existing constraints while, at the same time, maintaining other constraints. The complexity of this process may be such that not all individuals are capable of engaging in such mental gymnastics. Further, the violated constraints in the creative process are often basic assumptions; that is, “breakthroughs” occur when the solver rejects a widely held theory by attacking its key assumptions and formulating a new idea based upon different assumptions. The constraint violation thus reflects a process by which the solver is forced to reframe the problem, and this often happens as a resolution to an ambiguous situation. In this sense, the frame of Yin-Yang Balancing can facilitate creative thinking by encouraging the flexible boundaries between opposite constructs and also their maximum contrast. For example, one of the techniques to help think outside of the box is assumption reversal to challenge the taken-for-granted conventional assumptions by referring to their opposite assumptions (Michalko, 1991). This illustrates the value of the frame of Yin-Yang Balancing for creative cognition in general. Consistent with the Yin-Yang Balancing, March (1994) argued that “in many ways, human stories about the world can be characterized as strong beliefs in contradictory things,” so “this feature of interpretation underlies the emphasis on the simultaneity of opposites in much literature” (pp. 184–185). Highlighting the prefix “ambi,” Byers (2007, p. 28) even defined ambiguity as involving “a single situation or idea that is perceived in two self-consistent but mutually incompatible frames of reference,” which is similar to the notion of paradox (but stronger than duality) and related to the completeness-consistency balancing as well as the science-art balancing.

Finally, an effective management of ambiguity in the ill-structured problems often involves the incubation effect (Wallas, 1926), which is perhaps the most widely cited phenomenon in the creative literature (see Sio & Ormerod, 2009 for a review). This effect refers to the event that a
solver may work on a complex problem that defies immediate solutions and, upon “setting aside” the problem, a solution suddenly occurs, often upon an apparently extraneous stimulus or subconscious insight. The problem is thought to be “incubating” during the period of detachment, but somehow the solution is triggered at the end of this period. The incubation effect occurs at one of the four stages in the model of Wallas (1926), and it often occurs below the threshold of consciousness (cf. Simon, 1966). It is possible that the detachment from a problem at the incubation stage will enable a multi-framing integration (i.e., the notion of ambiguity defined in this study), where the solver considers alternative frames about the same complex problem, often subconsciously, so as to be free from the possible constraints present at the conscious level (cf. Voss & Means, 1989). Gordon (1961, p. 37) pointed out, “A new viewpoint depends on the capacity to risk and to understand the mechanisms by which the mind can make tolerable and temporal ambiguity implicit in risking.” Hence, the tolerance of ambiguity is typically considered one of the rare qualities of creative individuals and an inevitable part of creative process (e.g., Dowd, 1989; Lubart & Guignard, 2004; Plucker & Renzulli, 1999; Singer, 2004; Voss & Means, 1989), so is the tolerance of contradiction (e.g., Benack, Basseches, & Swan, 1989; Rothenberg, 1979; Vaughan, 1985; Voss & Means, 1989). In addition to its holistic and duality features, the creative solution of an ill-structured problem also derives from a dynamic process (Simon, 1973), thus the Yin-Yang Balancing. This is consistent with the notions of tacit knowledge and reflective practice as personal and intuitive (Polanyi, 1958; Schön, 1983). Despite the various attempts to explain the incubation effect, the debate continues regarding the exact nature of the process and the implication of such an effect (cf. Koestler, 1964; Perkins, 2000, 1981).

The above reframed construct of ambiguity can be effectively illustrated by the metaphor of 3-D picture. A rich multidimensional scene requires multiple cameras with multiple frames to form a 3-D picture. When the multi-frame 3-D picture is projected to a single screen, and without the 3-D lens, the 3-D picture will look fuzzy. However, once we put on the 3-D lens, the 3-D picture will become clear and multidimensional at the same time. As I argued earlier about the unique value of the frame of Yin-Yang Balancing to reframe paradoxes into duality as opposites-in-unity, the frame has the potential to serve in the role of the 3-D lens so as to reframe ambiguity from a negative problem of inconsistency to a positive solution for completeness. Further, the frame of Yin-Yang Balancing is consistent with our natural two-eye visual system to capture the 3-D reality with our two naked eyes. In the case of naked eyes, our brain can serve as the 3-D lens to integrate the
dual frames of our two eyes together with no problem of fuzziness. In this sense, the frame of Yin-Yang Balancing resembles our natural dual-visual system (another metaphor for the frame of Yin-Yang Balancing), so the “either/and” frame is closer to the natural world than the Western counterparts of either/or logic and “both/or” dialectics. It is central for us to adopt the frame of Yin-Yang Balancing so as to appreciate the value of ambiguity.

In contrast, the typical approach in the West is to reduce the 3-D complexity into a series of 2-D artifacts created by a single-lens camera for each artifact, similar to one-eye vision, thus resulting in fuzziness when multiple 2-D pictures are put together for a 3-D picture. We have to admit that single-lens or one-eye vision is made inevitable by the fact that we have to rely on the second-best mechanical solution to substitute the organic system of natural two-eye vision when we take pictures. However, the mechanical solution should not be considered the only option possible, and we should break from the blindfold of rational reductionism. We can create both consistent and complete knowledge in both exploratory and exploitative processes. This will require the integration between the West and the East because they have two contrary cognitive systems (Nisbett, 2003), but such systems can be bridged for “extracultural judgment,” including the priming effect of Chinese yin-yang symbol. For instance, Adler and Kwan (2009) found that European Americans anticipated the greater change and also adopted the more balanced view when they were primed with the yin-yang symbol. More supporting evidence can be expected to emerge in the future, especially concerning the balance of tensions in management (e.g., Chen, 2002, 2008; Dodd & Favaro, 2006; Lewis, 2000; Li, 1998, in press; Poole & Van de Ven, 1989; Smith & Lewis, 2011; Stacey, 1996). I focus on management as it is the best domain to balance science with art.

When we apply the frame of Yin-Yang Balancing to the ambiguity of complex issues in terms of multidimensional (multilevel) holistic content as well as multistage dynamic process, the notion of ambiguity of diverse conceptual approaches can be readily explained and embraced. In particular, the frame of Yin-Yang Balancing can integrate the diverse views on both sides of the debate into a single framework as holistic, dynamic and duality because the Yin-Yang frame has the unique capability to reframe ambiguity from multi-frame “fuzziness” into “3-D clarity.” For instance, without the frame of Yin-Yang Balancing, the diversity in multidimensionality of trust form and base would be analyzed one at a time as if they are all independent without interdependence, interaction, and interpenetration.
The apparent advantage of multi-frame separation (multidisciplinary) is that each frame is clear without fuzziness or inconsistency (thus no single-frame ambiguity), but the obvious disadvantage is the lack of completeness or “3-D picture.” The need for complete 3-D pictures defines the inevitability and desirability of ambiguity as multi-frame integration (Li, 2012).

Toward a Geocentric Meta-Paradigm

When we apply the reframed notion of ambiguity to the issues of problem solving and decision making, we can explore the causal link between multi-frame ambiguity and intuitive imagination via the mechanism of metaphor toward the Eastern paradigm of creative cognition. This paradigm consists of three key elements at two key stages: (1) from complexity to ambiguity and (2) from ambiguity to metaphor. First, complex issues or phenomena will inevitably lead to multi-frame ambiguity without the single-frame fuzziness. While complexity can be addressed by the ontology of “Tao,” multi-frame ambiguity must be addressed by the unique epistemology of Yin-Yang Balancing. Second, multi-frame ambiguity will require metaphor as a unique mechanism for creative cognition under the conditions of both complexity and ambiguity. Metaphor can be addressed by the methodology of “Wu” as intuitive imagination. The complexity-ambiguity-metaphor chain is built as the core of the Eastern paradigm of creative cognition. We have two unique opportunities to contribute. First, we can develop the Eastern paradigm of creative cognition as the philosophical foundation for incorporating the Western literature on creativity toward the geocentric meta-paradigm of creative cognition. Second, we can also integrate the meta-paradigm of creative cognition with the Western paradigm of critical cognition toward the ultimate geocentric meta-paradigm of general cognition (cf. Byers, 2007; Miller, 1989; Morin, 2008). I highlight “Wu” as a unique Eastern intuition for both science and art (see Table 1 for details).

In essence, the Chinese notion of “Wu” serves as the anchor in the Eastern paradigm of creative cognition for knowledge exploration in terms of path-breaking discovery, in contrast to the Western paradigm of critical cognition (i.e., both logical analysis and expertise-based intuition) for knowledge exploitation in terms of path-dependent proof or extension (March, 1991). In this sense, the Eastern paradigm is largely for creative problem solving and decision making, while the Western paradigm is largely...
| Philosophies of Science/Wisdom and Paradigms of Cognition | The West → (countries under strong influence of ancient Greek civilization) | Geocentric Balancing (holistic, dynamic and duality) | ← The East (countries under strong influence of ancient Chinese civilization) |
|----------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------|
| **Ontology**                                             | Realism or idealism                                                      | *Balancing (with the East as the core)*                   | “Tao” Subjective-objective mix Context-object mixed |
|                                                          | Context or object as separated and unbalanced                           |                                                          |
| **Epistemology**                                         | Rational reductionism                                                    | *Balancing (with the East as the core) Yin-Yang*         | Yin-Yang Balancing Consistency-completeness |
|                                                          | Absolute consistency                                                    | *Balancing for duality as opposites-in-unity*           | Multi-framing Nonlinear and ambiguity |
|                                                          | Single-framing                                                          |                                                          | Fuzzy/Flexible boundaries |
|                                                          | Linear and clarity                                                      |                                                          | Conscious/subconscious mix |
|                                                          | Sharp/Fixed boundaries                                                  |                                                          | Science and art as duality |
|                                                          | Purely conscious                                                        |                                                          | |
|                                                          | Science and art as dualism                                              |                                                          | |
| **Methodology**                                          | Logical analysis (deduction, induction and abduction; purely rational and explicit; single-disciplinary and mechanistic) | *Balancing (with the East as the core) “Wu” as the link between science and art* | “Wu” as intuitive imagination (metaphor as analogy with imagination and imagery; rational-emotion mix and implicit; interdisciplinary and organic) |
| **Paradigm of Cognition**                                | Critical cognition                                                      | *Balancing (with the East as the core)*                  | Creative cognition |
|                                                          | Knowledge exploitation (to evaluate insights via the Western philosophy of science) | *Exploration first*                                     | Knowledge exploration (to create insights via the Eastern philosophy of wisdom) |
|                                                          | Mind as computer/mirror                                                 | *Exploitation later*                                    | Mind as organism/lamp |

*Table 1. Philosophies of Science and Wisdom toward the Meta-Paradigm of Cognition.*
<table>
<thead>
<tr>
<th>Complexity-Ambiguity-Metaphor Chain</th>
<th>Quantitative complexity</th>
<th>Qualitative complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balancing (with the East as the core)</td>
<td>Single-frame ambiguity</td>
<td>Multi-frame ambiguity</td>
</tr>
<tr>
<td>Path-dependent analysis</td>
<td></td>
<td>Path-breaking metaphor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application to Creativity in Problem Solving &amp; Decision Making</th>
<th>Exploitative intuition (experience- and expertise-based judgment)</th>
<th>Exploratory intuition (from gradual insight to sudden insight)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exploitative metaphor (comparing the known)</td>
<td>Exploratory metaphor (from known to unknown)</td>
</tr>
<tr>
<td></td>
<td>Domain-specific depth</td>
<td>Domain-generic breadth</td>
</tr>
<tr>
<td></td>
<td>Close-ended rule</td>
<td>Open-ended norm</td>
</tr>
<tr>
<td></td>
<td>Pure mindfulness</td>
<td>Mindful/Mindless mix</td>
</tr>
</tbody>
</table>
for critical verification and extension. Further, it is imperative that “Wu,” especially its sudden version (for sudden insight) in contrast to its gradual version (for gradual insight), is inherently rooted in the Eastern epistemological frame of Yin-Yang Balancing and the Eastern ontology of “Tao.” Due to the above reasons, I distinguish between the Eastern notion of intuition as exploratory in nature as the core of the Eastern paradigm of creative cognition and the Western notion of intuition as exploitative in nature as the peripheral of the Western paradigm of critical cognition (the core in the Western paradigm is logical analysis). Consequently, although most scientific insights have been intuitively achieved first, but only verified later via logical analysis (Langer, 1989; Laughlin, 1997; von Franz, 1992), the process of exploration is often recounted as a rational process rather than “Wu” (cf. Langley, Simon, Bradshaw, & Zytkow, 1987). This misconception has been effectively “falsified” by some great minds in the West. In particular, Popper eloquently pointed out the limitations of logical analysis as well as the unique power of exploratory intuition (1959, pp. 31–32):

The initial stage, the act of conceiving or inventing a theory, seems to me neither to call for logical analysis nor to be susceptible of it. The question how it happens that a new idea occurs to man ... is irrelevant to the logical analysis of scientific knowledge ... I shall distinguish sharply between the process of conceiving a new idea, and the methods and results of examining it logically ... there is no such thing as a logical method of having new ideas, or a logical reconstruction of this process. My view may be expressed by saying that every discovery contains ‘an irrational element,’ or ‘a creative intuition,’ in Bergson’s sense. In a similar way Einstein speaks of the ‘search for those highly universal laws ... from which a picture of the world can be obtained by pure deduction. There is no logical path’, he says, ‘leading to these ... laws. They can be reached by intuition, based upon something like an intellectual love (Einfühlung) of the objects of experience.’

This criticism is echoed by Poincaré, one of the greatest mathematicians and the last universalist, that “pure logic could never lead us to anything but tautologies; it could create nothing new; not from it alone can any science issue ... to make any science, something else than pure logic is necessary. To designate this something else we have no word other than intuition” (1913, pp. 214–215); “that the science of demonstration is not all science and that intuition must retain its role as complement, I was about to say as counterpoise or as antidote of logic” (p. 217); “logic and intuition have each their necessary roles ... Logic ... is the instrument of demonstration; intuition is the instrument of invention” (p. 219), so “it is by logic one demonstrates, by intuition one invents. To know how to criticize is good, to
know how to create is better”; hence, without intuition “would be like a
writer who should be versed in grammar but had no ideas” (p. 438). Planck,
the father of quantum physics, also argued that the path-breaking scientist
all “must have a vivid intuitive imagination, for new ideas are not generated
by deduction, but by an artistically creative imagination” (1950, p. 109). The
solid evidence is available in the writings of great scientists, especially
conspicuous in mathematics as the most rational among all sciences, which
reflect their trust in intuition and the sense of beauty, together with their
distrust in deductive logic, one-track consistent mind, and all-conscious
thinking (Hadamard, 1945; Koestler, 1964). The research on genius and
Nobel laureates revealed their intuitive qualities (e.g., Marton, Fensham &
Chaiklin, 1994; Miller, 1996; Shavinina, 2004). In other words, exploring
insights is “Wu,” while exploiting rational proof to verify or falsify the
insights is logical analysis. Hence, the great scientists have implicitly
adopted the Eastern philosophy of wisdom without explicitly knowing that.
In other words, they have had the right intuition without the philosophic
rationale behind their best practice. In sum, the Western philosophy of
science is primarily concerned with how scientific knowledge is evaluated
and verified (or falsified) as close-ended and close-minded exploitation,
while the Eastern philosophy of wisdom is primarily concerned with how
such knowledge is discovered and created (or invented) as open-ended and
open-minded exploration. However, in line with the frame of Yin-Yang
Balancing, the two philosophies can be reframed as a duality of exploration
and exploitation toward a geocentric meta-paradigm.

THE META-PARADIGM FOR THE
RELEVANCE-RIGOR BALANCING

Reframing Relevance and Rigor as a Duality

The geocentric meta-paradigm is necessary and effective to remedy the
blind emulation of natural sciences by management research toward the
“scientific model” (Bennis & O’Toole, 2005; Hayek, 1952; Kieser & Nicolai,
2005; Lorsch, 2009; Pettigrew, 2001; Pfeffer, 2007; Van de Ven & Johnson,
2006). It is clearly evident that the “scientific model” is a “naked emperor”
when it is applied to management research in particular and social studies in
general (March & Sutton, 1997, p. 702). Applying the meta-paradigm to the
debate over relevance and rigor, I share the view that the relevance-rigor
balancing is necessary for management research as an applied field of social studies, and I concur that relevance-rigor balancing is feasible for management research as an applied field of social studies (Lorsch, 2009; Van de Ven, 2002; cf. Daft & Lewin, 2008; Palmer, 2006). It is worth noting that I deliberately avoid the loaded concept of “social sciences” because I argue that a blind pursuit of the “scientific model” of natural sciences as the sole legitimate criterion to judge rigor is wrong for social studies, and the “scientific rigor” is one of the two major causes of the relevance-rigor gap. The other cause is the misconception of “relevance” in terms of readily applicable tools in sharp contrast to theoretical insights. These two causes are directly related because both are rooted in the prevailing paradigm in the West, including the epistemology of rational reductionism and the methodology of logical analysis (Li, 1998, 2012, in press). It is the Western paradigm that both pushes a creeping parochialism toward the “scientific rigor” and pulls a creeping parochialism toward the “fad-chasing relevance,” thus the misfit between the means and the ends. In this sense, the Western paradigm is responsible for substituting the ultimate ends or goals of research and practice with the convenient means or tools of research and practice. This confounding mix of ends and means mediates between the underlying either/or logic and the resulted relevance-rigor gap. This serious problem can be remedied by the Eastern paradigm and the geocentric meta-paradigm, including the epistemology of Yin-Yang Balancing and the methodology of “Wu.” In particular, relevance and rigor can be reframed as a duality rather than a dualism or dichotomy (Li, 1998, 2008, in press; cf. Pettigrew, 2001; Polanyi, 1958; Schön, 1983).

Even though the relevance-rigor gap is actually “a complex and controversial subject” (Van de Ven, 2002, p. 179), almost all views treat the two as either complementary or conflicting (cf. Kieser & Leiner, 2009; Palmer et al., 2009; see Palmer, 2006; Van de Ven & Johnson, 2006 for reviews), neglecting the third possibility of being both complementary and conflicting, thus a duality rather than a dualism or dichotomy. From the frame of Yin-Yang Balancing, a complex phenomenon should be taken as a duality in terms of holistic and dynamic balances between inherently contrary (relatively or partially conflicting) yet complementary (relatively or partially harmonious) elements as opposites-in-unity (Li, 2008). It is critical to see that the opposites in a duality must be properly balanced to be primarily complementary, while an improper balance can render the opposites primarily conflicting. From this perspective, the notion of duality can shed light on the notion of “healthy tension” by reframing a tension as a duality with a proper balance between conflict and harmony as “healthy” or
constructive, and an improper balance as “unhealthy” or destructive. The notion of duality can help explain and solve the relevance-rigor gap, especially in the contexts of complexity and ambiguity as well as via the scheme of metaphor or analogy.

**Implications of Relevance-Rigor Duality**

Here I highlight three key implications of reframing relevance and rigor as a duality. First, I posit that the current debate over relevance and rigor is largely misplaced and misguided because of the ill-defined notions of relevance and rigor in the debate. If we define them properly, the debate could be readily settled, and a proper relevance-rigor balancing could be easily achieved. However, the current debate implicitly assumes only a single type, rather than a variety, of rigor and relevance. This assumption is misconceived since there are multiple types of relevance and rigor with distinctive roles. While some types are in conflict, others are complementary. For instance, if we define rigor narrowly in terms of the sophistication of quantitative tools as the sole notion of rigor (i.e., “scientific rigor”), there is little hope of achieving the relevance-rigor balancing in management research as one of applied social studies given the complex and elusive features of social phenomena relative to natural ones (Ghoshal, 2005; Hayek, 1952; Pettigrew, 2001; Pfeffer, 2007; Van de Ven, 2002). Similarly, if we define relevance narrowly in terms of the readiness of instantly applicable tools for practitioners, there is little hope of achieving the relevance-rigor balancing in management research as an academic field (Aldag, 1997; Daft & Lewin, 2008; Hinings & Greenwood, 2002; Huff, 2000). In particular, when both relevance and rigor are defined narrowly, the relevance-rigor gap can only be bigger (Weick, 2001; also see Kieser & Leiner, 2009). Hence, the root cause of the relevance-rigor debate is the wrong conceptions of relevance and rigor, so below the surface of an imbalance between strong rigor and weak relevance is the deep-rooted problem of pursuing the wrong types of relevance and rigor because both are defined too narrowly. To a large extent, management research is neither irrelevant nor rigorous, so the relevance-rigor gap could be much wider than most of us have recognized. This is because the extant debates over the relevance-rigor gap commit the fatal error of equating social phenomena with natural phenomena. We must differentiate them as distinctive types. The critics of “scientific rigor” often evoke the complex and elusive features to distinguish between social and natural phenomena (e.g., Hayek, 1989;
Van de Ven & Johnson, 2006). I want to extend their arguments by suggesting that the truly unique natures of social phenomena lie in two other aspects, i.e., *intersubjectivity* and *constructivism*. The two unique natures give rise to the complex and elusive features (Mir & Watson, 2000; Zanotti, 2007; also see Hayek, 1952). Keynes is right in his point that economics is not a natural science, but a moral study, because it deals with introspection and value, both of which are of high uncertainty because of the organic nature of human life (1973).

The second implication is the need for an integrative framework to classify the diverse types of relevance and rigor to open the black box of the relevance-rigor gap. There are various approaches to conceptualizing and measuring relevance and rigor. In theory, most regard rigor as a proper design or process of research, while relevance as a practically useful result or content of research (e.g., Lorsch, 2009; Vermeulen, 2005, 2007). In practice, however, many take rigor too narrowly as the “scientific model” or quantitative methods, and relevance as readily applicable tools (see Ghoshal, 2005; Palmer, 2006; Pfeffer, 2007; Van de Ven & Johnson, 2006 for reviews). What is common between these two approaches is that both distinguish relevance as the end from rigor as the means. Further, others take rigor as the development of basic knowledge, and relevance as the transmission of applied knowledge (e.g., Markides, 2007; Stokes, 1997). The last approach differentiates between relevance and rigor as two types of knowledge. I take issue with all three approaches because they fail to capture the holistic and multidimensional natures of relevance and rigor. One way to help remedy the problem is to adapt Boyer’s typology of scholarship, i.e., discovery, integration, application, and teaching, as a system to classify relevance (1990). The other remedy is to treat relevance and rigor as a duality so that they mutually affirm and negate to different degrees in different aspects at different times (Li, 2008; also see Pettigrew, 2001).

Consistent with the central theme of engaged scholarship with a new meta-paradigm, I adapt the four types of scholarship into three primary types according to their context-specific engagement with three core stakeholders: (1) theoretical relevance, (2) practical relevance, and (3) teaching relevance. Tied to the above three types of relevance, rigor can be reframed as three types as well: (1) theoretical rigor, (2) practical rigor, and (3) teaching rigor. More specifically, *theoretical relevance* refers to the critical impact of selected research questions and contributions for basic research; *practical relevance* refers to the critical impact of selected research questions and contributions for applied research; *teaching relevance* refers to the critical impact of selected pedagogical materials drawn from basic and
applied research. Similarly, theoretical rigor refers to the critical impact of selected research methods and procedures for basic research; practical rigor refers to the critical impact of selected research methods and procedures for applied research; teaching rigor refers to the critical impact of selected pedagogical methods and procedures for teaching in the classroom and beyond. The above types of relevance and rigor can be further classified. For instance, theoretical relevance can be for path-breaking (exploratory) or path-dependent (exploitative) contributions; theoretical rigor can be for either theory-building (qualitative) or theory-testing (quantitative). I posit that most problems in the relevance-rigor gap derive from a wrong mix of relevance and rigor. As Keynes presumably pointed out, it would be better to be vaguely right than precisely wrong (Skidelsky, 2011), so one could mix a right type of relevance with a wrong type of rigor or vice versa. This statement also suggests that relevance as the end should trump rigor as the means: sloppy relevance is better than rigorous irrelevance. In other words, relevance should be the end of scholarship for the “why” questions as the first-order criteria for judging the impact of scholarship, while rigor is the means of scholarship for the “how” questions as the second-order criteria. In this sense, the relevance-rigor gap derives largely from the mistake of putting the cart before the horse.

Concerning the critical requirements of engaged scholarship, the two typologies derive from the conviction that it is not acceptable for scholarship to lack critical contributions to effective solutions of major challenges in both academic and practical worlds. Our scholarship must engage with our peers in the academic community as well as all other core stakeholders beyond the academic community, such as the practitioner community and student community. First, it is not acceptable for our scholarship to have little impact on the complex theoretical issues. It is sad that our research suffers from the creeping parochialism (Daft & Lewin, 2008; Gulati, 2007; March, 2005; Pfeffer, 2007). To be relevant in the domain of basic research, we must engage with our peers in the academic community as a whole beyond single disciplines. Second, it is not acceptable for our scholarship to have little impact on the practical solutions of real-world problems. It is sad that none of the top 50 management innovations originate from our academic community (Birkinshaw & Mol, 2008; also see Davenport & Prusak, 2003; Miner, 1984; Pfeffer & Fong, 2002). To be relevant in the domain of applied research, we must engage with the real world we live in. Third, it is not acceptable for our scholarship to have little impact on the pedagogical issues. It is sad that our teaching is relevant mostly in the executive programs but not much in all other education
programs (Pfeffer & Fong, 2002; Vermeulen, 2007). To be relevant in the domain of teaching, we must engage with all of our students beyond the executive programs. In sum, for our engaged scholarship to serve our three core stakeholders, we need the two typologies of relevance and rigor. It is imperative that the proposed typologies meet the requirements of engaged scholarship with the proper relevance-rigor balancing.

The third implication is the conviction that the relevance-rigor balancing is made possible by the frame of Yin-Yang Balancing with its core tenets. First, the two typologies are holistic because they cover all three core stakeholders, which our scholarship must serve (Van de Ven & Johnson, 2006). In particular, they integrate the theoretical reference with the practical as well as teaching relevance, and they also match a specific type of relevance with the proper type of rigor. It is not acceptable for management research to be “colonized” by any single discipline (e.g., economics) or methodology (e.g., “scientific model”) (see Ghoshal, 2005; Hayek, 1989; Pfeffer, 2005). For instance, March and Sutton (1997, p. 702) pointed out that most studies that applied the “scientific model” to organizational performance “are incapable of identifying the true causal relations among performance variables and other variables correlated with them through the data and methods they normally use.” This is clearly not acceptable for management research as an applied field of social studies (Bennis & O’Toole, 2005; Van de Ven & Johnson, 2006). Further, it is also not acceptable for management research to detach increasingly from its underlying disciplines (Hinings & Greenwood, 2002; Lorsch, 2009). Most importantly, it is not acceptable for our scholarship to be straitjacketed into parochialism with disciplinary, theoretical, or view-specific confinement (Agarwal & Hoetker, 2007). We should take full advantage of the unique strength of management research in terms of its interdisciplinary heritage as the greatest potential for research arbitrage and synergy (Van de Ven & Johnson, 2006; Zahra & Newey, 2009).

Second, the two proposed typologies are dynamic because they cover the likely directions of all the influences between relevance and rigor as well as the possible stages of such influences. It is not acceptable for our scholarship to be static with little reference to the critical issue of time (Li, 2007). The typologies implicitly remedy the problem by suggesting the first-order direction of influence from relevance to rigor (with relevance as the end for rigor as the means) and the second-order direction from rigor to relevance (with rigor as the means for relevance as the end). Further, they can indicate a two-way traffic between theoretical relevance and practical (teaching) relevance, with basic research as the source for applied research (teaching)
and vice versa. Finally, they can indicate a two-way traffic between theoretical and practical (teaching) rigor. In particular, the domain of teaching can play the boundary-spanning role in connecting the different domains of research and practice (Jarzabkowski & Whittington, 2008), especially in the executive programs (Markides, 2007; Vermeulen, 2007). In this sense, teaching relevance and rigor can be the mediating mechanisms for the domains of research and practice. For instance, the ambidextrous or bi-competent scholarship can most likely occur among effective teachers because they span the boundaries between research and practice (Tushman, O’Reilly, Fenollosa, Kleinbaum, & McGrath, 2007).

Third, the two proposed typologies are duality because they build and support the holistic and dynamic dimensions of the relevance-rigor balancing by taking the two as both complementary and conflicting, while the prevailing views treat the two as either complementary (neglecting the negative side of conflict) or conflicting (neglecting the positive side of complementarity). If relevance and rigor are fully complementary, there is no need for us to discuss the relevance-rigor balancing because it is by default impossible for the relevance-rigor gap to occur in the first place. In contrast, if relevance and rigor are fully conflicting, there is no need to discuss the relevance-rigor gap and balancing. As the two sides of the same coin, this partial or relative nature of duality as the opposites-in-unity is where the frame of Yin-Yang Balancing differs from the either/or logic for dualism in terms of absolutely separating all opposites as dichotomies (Li, 2008). One good example of duality as partially complementary and partially conflicting (in relative rather than absolute terms) that we discuss the relevance-rigor gap and balancing. As the two sides of the same coin, this partial or relative nature of duality as the opposites-in-unity is where the frame of Yin-Yang Balancing differs from the either/or logic for dualism in terms of absolutely separating all opposites as dichotomies (Li, 2008). Other good examples are the competition-cooperation duality (with competitive cooperation and cooperative competition; Chen, 2008), and the exploration-exploitation duality (March, 1991).

Duality Tenet as the Anchor for the Meta-Paradigm

Among the three core tenets of the frame of Yin-Yang Balancing, the duality tenet serves as the anchor for the other two tenets because the holistic and dynamic tenets cannot be possible without the duality tenet as
indicated by the names of Yin and Yang as the opposites-in-unity; reciprocally, the duality tenet is also made possible by the other two tenets. Specifically, duality is made possible by the interdependence and overlap between the opposites (tied to the holistic tenet) as well as the interchange and transformation between the opposites (tied to the dynamic tenet) (Li, 2008). To a large extent, all trade-offs, dilemmas, or paradoxes can be reframed as dualities to achieve the holistic and dynamic balances. For instance, it is argued that proliferation (diversity and fragmentation) and isomorphism (unity and homogeneity) are concurring in the field of management research, and only one of them should be selected (cf. Cannella & Paetzold, 1994; Pfeffer, 1993). However, the fact is that the two trends are the two sides of the same coin, i.e., parochialism (Gulati, 2007; March, 2005; Simon, 1976). In the increasingly narrow domain of single disciplines, theory, or view, there is a trend of isomorphism. However, in the broad field of management research and other fields as a whole, there is also a trend of proliferation as the inevitable result of the isomorphism at the level of discipline, theory, or view. The paradox of proliferation and isomorphism should be reframed as a duality to delineate the status of “quasi-discipline” or “quasi-paradigm.” As March (2007, pp. 9–10) pointed out:

The field of organization studies is a large, heterogeneous field involving numerous enclaves having distinct styles, orientations and beliefs. It is integrated neither by a shared theory, nor by a shared perspective, nor even by a shared tolerance for multiple perspectives. It retains substantial intellectual, geographic and linguistic parochialism, with separate enclaves persisting in their own worlds of discourse and forming a common field only by a definition that overlooks the diversity.

Further, according to the duality tenet, both proliferation and isomorphism are acceptable as long as they are balanced as the diversity-in-unity duality. This requires the diverse disciplines, theories, and views to know how they are related to each other as complementary and conflicting. It is natural and inevitable for the blind men to learn about the elephant the way they do from the partial knowledge toward the fuller knowledge (we must accept that we can never reach the ultimate truth, especially for social studies). This fragmented (disciplinary) approach is fine as long as each blind man is aware of the limitations of his partial knowledge and remains open-minded to what others have to contribute. In this sense, the problem does not lie in diversity and unity alone, but in the lack of proper balance (March, 2007). If they are properly balanced in terms of maximizing the complementary side while minimizing the conflicting side, diversity and unity will mutually affirm and reinforce each other; if it is improperly
balanced in terms of focusing exclusively on their conflicting side (toward parochialism) or their complementary side (a naive idealism), diversity and unity will mutually negate and reject each other. Palmer (2006) implied that all seven divides in management research can be reframed as dualities. Similarly, the divide between realism and constructivism as two philosophies of science can be reframed as a duality. The key to the reframing is an interdisciplinary integration “based on a systematic examination of the underlying differences in assumptions, central research questions, and orientations of relevant ideas” (Agarwal & Hoetker, 2007, pp. 1318–1319). This is the essence of diversity-in-unity duality with a proper balance between diversity and unity. The duality of diversity-in-unity is consistent with the contexts of complexity and ambiguity as well as the scheme of metaphor.

Applying the above argument to the relevance-rigor balancing, certain types of relevance and rigor are more complementary than others. In general, each type of relevance is more complementary with the matched type of rigor within the same domain than with that from other domains. For instance, theoretical relevance fits better with theoretical rigor than the other two types of rigor. Further, all types of relevance (rigor) are more complementary in some aspects than in other aspects. For instance, the most abstract aspect of theoretical relevance tends to be more complementary with the most abstract aspect of the other two types of relevance than with the most concrete aspect for ready application. Similarly, the most abstract aspect of theoretical rigor tends to be more conflicting with the most concrete aspect of the two other types of rigor than with the most abstract aspect. In this sense, the debate over quantitative and qualitative methods is directly related to the issue of rigor. In contrast to the naive approach to equating quantitative methods with rigor, we posit that either qualitative or quantitative methods could be rigorous or sloppy contingent upon the context of applications. If they are applied to a right type of relevance in a proper manner, both methods are rigorous; both methods will be sloppy if they are improperly adopted for a wrong type of relevance and/or in an improper manner. Quantitative methods are mainly for theory-testing, while qualitative methods are central to theory-building (Shah & Corley, 2006), especially for exploring the holistic content and dynamic process (Martin & Eisenhardt, 2010). I posit that the qualitative-quantitative divide can be reframed as a duality rather than a dichotomy of either fully complementary or fully conflicting (Symon, Buehring, Johnson, & Cassell, 2008). In this sense, quantitative methods are primarily for exploitation within a confined community like an island toward a closed parochialism, while qualitative
methods are largely for exploration with diverse partners like bridges toward an open boundary-spanning integration (Li, 2010; cf. March, 1991). Hence, the duality tenet can shed new light on abductive inference as a special balance between discovery and justification for the development of good theories (cf. Peirce, 1903; Popper, 1959).

In a general sense, the arguably best-known statement of “nothing as practical as a good theory” (Lewin, 1952) is an excellent illustration of the duality tenet. This statement implies that the best theory will meet the dual requirements of all types of relevance as well as rigor with the best possible relevance-rigor balancing. In contrast, it is equally true that nothing is as impractical as a bad theory that fails to meet the requirements of any type of relevance as well as rigor. It is sad that we may have more bad theories than good ones in management research and this could be the direct cause of the relevance-rigor gap. The current debate over the relevance-rigor gap should be reframed from how to improve rigor or relevance to how to develop good theories by having a proper relevance-rigor balancing. As Pettigrew (2001) correctly pointed out, the biggest challenge is to concentrate on a short list of big themes. This is imperative because management research is in danger of missing the big questions or themes (Buckley & Lessard, 2005; Li, 2010). Big themes can help concentrate on developing good theories as diversity-in-unity dualities with both holistic and dynamic balances. In this sense, the relevance-rigor balancing is similar to the exploitation-exploration duality with incremental and radical learning being both complementary and conflicting (March, 1991; also see Li, 2010). Given the imbalance in favor of exploitation against exploration in the field of management research, I take issue with the passive acceptance of the tenure-driven agenda as well as the blind pursuit of the “scientific model,” both of which result in the creeping parochialism as the symptom of disengaged scholarship.

To further apply the duality tenet to the relevance-rigor gap, I argue that good theories should be taken as the masterpieces of scholarship with the highest level balance between relevance and rigor. One way to measure masterpieces is to identify those that enjoy continuously high citation rates over a decade. This achievement, however, is not meant for everyone. All scholars have the dual tendencies of inertia and ambition. While the majority tend to be trapped into their “natural” tendency of inertia for more path-dependent exploitation, only a minority can be geared up toward their “natural” tendency of ambition for more path-breaking exploration. Among the explorers, only a few masters can build good theories as masterpieces. For those who are not masters but do not want to remain
mediocre, the way out is to move toward a proper balance between ambition for exploration and inertia for exploitation. In sum, the meta-paradigm, with the tenet of duality as its anchor, is imperative to reframe relevance and rigor so as to close the relevance-rigor and complexity-simplicity gaps in management research.

**THE YIN-YANG METHOD**

To develop novel constructs and theories at the interface between the established streams of research in the process of an inter-stream “trade,” two extant methods are helpful: grounded theory method (GTM; Glaser & Strauss, 1967), and case study method (CSM; Yin, 2009). GTM and CSM can even combined into an integrative method (Eisenhardt, 1989), which can be called *grounded case study*. However, if we apply the meta-paradigm to the extant methods, a new version can be proposed. In particular, it is possible to develop a novel version of grounded case study by applying the cognitive frame of Yin-Yang Balancing. Hence, I propose a novel version of grounded case study by enhancing the key principles of GTM and CSM, and taking all paired cases with needed rounds of comparison for the purpose of integrating the two sides of any debate (cf. Charmaz, 2006; Eisenhardt, 1989; Glaser & Strauss, 1967; Yin, 2009). I term the new version of grounded case study the *Yin-Yang Method* because it is rooted in the frame of Yin-Yang Balancing. The new version is especially effective in the contexts of complexity and ambiguity for the scheme of metaphor.

*The Link between GTM and CSM*

Many management scholars have called for more and better-guided longitudinal CSM (e.g., Li, 2003; Parkhe, 1993). In contrast to cross-sectional survey study, longitudinal CSM has the prospect of advancing more complete and consistent knowledge about the holistic, dynamic and paradoxical characters of organization (Eisenhardt & Graebner, 2007; Pettigrew, 1990). In particular, an inductive CSM is the best method if the research is both theory-driven for integrating distinctive models and phenomenon-driven for developing a plausible theory (Eisenhardt & Graebner, 2007, p. 26). In general terms, CSM can be adopted for either theory-building or theory-testing (Yin, 2009), but it is more appropriate and
effective for the former than the latter (Eisenhardt, 1989). In this sense, it is consistent with GTM (Glaser & Strauss, 1967).

GTM highlights a set of key principles for exploring new constructs and new theories in an emergent process (also see Charmaz, 2006; Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1990). These principles can be summarized as two basic themes (1) the first theme is concerned with an overall inductive emergence of new constructs or theories from data (thus grounded in data, as the most appropriate in the context of exploring a new research domain or seeking a solution to a long-lasting debate) and (2) the second theme is concerned with the key elements of open-ended to start (i.e., all possible without any fixed preconceptions) but close-ended to finish (i.e., novel constructs and theories emerging beyond thick descriptions) as well as the procedure of constant comparison (including the types and phases of sampling, coding, categorizing, and theorizing) as an abductive logic (both inductive and deductive). Specifically, the abductive logic starts as an induction from data to ideas and then shifts to a deduction from ideas to data (Charmaz, 2006).

The Specifics of Yin-Yang Method

Applying the cognitive frame of Yin-Yang Balancing to the key principles of GTM and CSM, I can develop a novel integrative Yin-Yang Method. It is integrative since it combines the principles of both GTM and CSM, but it is also novel because it adds several new principles and procedures to both GTM and CSM (cf. Eisenhardt, 1989; Gersick, 1988; also cf. Charmaz, 2006; Glaser & Strauss, 1967; Glaser, 1978; Strauss & Corbin, 1990; Yin, 2009). For the logical presentation of Yin-Yang Method, I follow the eight steps proposed by Eisenhardt (1989, p. 533). In the sections below, I explain each step in detail and discuss how I enhance each one by applying the Yin-Yang Balancing toward the Yin-Yang Method. This integrative method offers an alternative to the extant methods of case study (e.g., Eisenhardt, 1989; Yin, 2009) in the sense that the Yin-Yang Method seeks to build an integrative theory upon an ongoing debate between various opposing theories, while the extant CSMs either explore a novel theory based on GTM (Eisenhardt, 1989) or exploit an established theory (Yin, 2009). This distinction can be clearly demonstrated by the following procedures of Yin-Yang Method, with the open-mind integration of opposites into a unity as its core premise and central theme.
Step 1a: Literature Review to Select Research Question and Domain

First, the Yin-Yang Method recommends a **focus on a major issue under an ongoing debate** (e.g., the debate over globalization and localization or over competition and cooperation). The reason for this selection is that Yin-Yang Method is best at reconciling and integrating opposing views. In general, the Yin-Yang Method treats all debates or controversies as the Yin-Yang dualities so as to avoid possible one-sided biases. The primary goal of Yin-Yang Method is to integrate opposite views into a unified meta-view within an established field or across two or more established fields.

Hence, the first step of Yin-Yang Method is an initial delineation of the research domain with its central question, in at least broad and open-ended terms. In this sense, a prior literature review is necessary to avoid the problem of an “empty head” as long as one keeps an open mind (Dey, 1999). A prior rich knowledge (either one’s own experience or others’ theories) about the research domain and central question is critical to the theoretical sensitivity for insights because “the root sources of all significant theorizing are the sensitive insights of the observer himself” (Glaser & Strauss, 1967, p. 251). Hence, reading widely within a single discipline or across multiple disciplines is a recommended means of enhancing theoretical sensitivity (Glaser, 1978). Hence, we argue that one of the best places to obtain rich knowledge is to critically review the major debate within a field or across the boundaries of two established fields (e.g., Campbell, 2004; Gersick, 1988). Further, the focus on a major debate is particularly helpful for those young scholars who do not have the prior knowledge and experience to develop a worthy research agenda to pursue. In sum, the sharp focus on a major debate at the interface between two views within a single field or across two fields as a point of departure is the first unique step of my Yin-Yang Method and the first revision of Eisenhardt’s version of CSM.

Step 1b: Literature Review to Specify Core Dimensions

Next, the Yin-Yang Method advocates an **in-depth review of the literature related to the debate so as to specify the core dimensions involved** in the debate. This prior literature review is required simply because we must fully understand the perspectives of the opposing sides so as to avoid the problem of an “empty head” caused by no prior literature review as prescribed by GTM (cf. Dey, 1999; Glaser & Strauss, 1967). Further, the literature review will not lead to the problem of a “closed mind” because it pays equal attention to both sides of the debate (cf. Glaser & Strauss, 1967). Beyond the step of defining research question and domain, a priori specification of constructs, and later literature review (Eisenhardt, 1989), the prior literature
review is consistent with the requirement of CSM for theoretical guidance (Yin, 2009). The purpose of such a literature review is to learn about the complexity of the debated issue, including its context (Yin, 2009). Hence, this literature review can integrate open mind with “full” head for the benefit of an open-ended guidance from multiple theories without the cost of theoretical rigidity, thus no premature jump to conclusions.

Further, a prior rich knowledge of the key dimensions of research domain is desirable because it helps organize the later data collection and data analysis (Eisenhardt, 1989; cf. Yin, 2009), as long as it is utilized as the points of departure in an open-ended process (Charmaz, 2006). Such a review is able to accelerate the process of theoretical sampling (Charmaz, 2006). In sum, a prior specification of core dimensions of the debate as a framework or heuristic rubrics is the second unique feature of Yin-Yang Method and also the second revision of Eisenhardt’s version of CSM.

Step 2: Theoretical Sampling for Case Selection

The second step in Eisenhardt’s version of CSM is to select cases via the typical procedure of theoretical sampling, in which “cases are chosen for theoretical, but statistical, reasons” (Eisenhardt, 1989, p. 537). In particular, it makes sense to select cases in contrast to each other with diverse qualities (Pettigrew, 1990), but the purpose is to identify both diverse and shared features across various cases (Gersick, 1988). In short, the purpose of theoretical sampling is to maximize the chance of discovering new constructs and theories (Glaser & Strauss, 1967). Further, the literature review for the selection of research question, domain, and dimensions can greatly facilitate the theoretical sampling (Charmaz, 2006; Eisenhardt, 1989).

The Yin-Yang Method advocates the selection of contrasting cases in pairs, with one as the best to represent one side of the debate and the other as the best to represent the other side, thus one “Yin” case and one “Yang” case. This new procedure of theoretical sampling extends the recommendation by CSM and GTM, but it is consistent with multi-case comparative design (cf. Glaser & Strauss, 1967; Yin, 2009). The paired cases will have the best potential to highlight not only the distinctions between these polarized extreme cases but also their interplays (Pettigrew, 1990), with their maximum forced comparisons (Eisenhardt, 1989). In this sense, the selection of paired “Yin” and “Yang” cases offers the best opportunity for comparative case studies beyond the typical design of replication logic because the paired cases can most “transparently” reveal the holistic, dynamic and duality features (Pettigrew, 1990; cf. Eisenhardt, 1989; Yin, 2009). Further, the Yin-Yang Method recommends multiple rounds of
paired Yin-Yang cases until we reach the stage of theoretical satiation (Glaser & Strauss, 1967). In sum, the sequential order of multiple paired cases is the third unique feature of Yin-Yang Method and also the third revision of Eisenhardt’s version of CSM. It is worth noting that this revision is consistent with the principle of theoretical sampling after the emergence of initial categories or themes as constructs (Charmaz, 2006; Glaser & Strauss, 1967).

Step 3: Multisource Data Collection for Longitudinal Cases

The third step in grounded case study is for data collection, especially from multiple sources via multiple methods, including personal interview, archival data, and direct observation (Eisenhardt, 1989, p. 537). The data collection and data analysis in the Yin-Yang Method will adopt the shared procedures by GTM and CSM, including the approach to triangulation (Yin, 2009). The Yin-Yang Method is the most conducive to triangulation in both data collection and data analysis because it constantly sharpens the cross-case comparisons, as compared to the traditional case study for replication. Besides, the Yin-Yang Method maximizes the integration between data collection and data analysis, especially between within-case and cross-case comparisons rather than the separate steps in a sequence (cf. Eisenhardt, 1989). Hence, the Yin-Yang Method often applies to a cross-level design by selecting multiple pairs of cases at different levels (e.g., person, team, firm, industry, and country) as different units of analysis. Further, with the polarized cases, the Yin-Yang Method provides the best opportunity for maximum falsifications due to the unique contrasting nature of “Yin” and “Yang” cases as polarized ones in pairs (cf. Eisenhardt, 1989).

Further, due to the above benefits, the Yin-Yang Method has the best potential to generate the maximum forced comparisons and falsifications regarding constructs, theories, and hypotheses, and thus is highly conducive to theoretical saturation with multiple pairs of “Yin” and “Yang” cases in a recursive process and abductive reasoning (cf. Eisenhardt, 1989; Glaser & Strauss, 1967). In general terms, we can regard Eisenhardt’s version of CSM as more effective for discovering little-known issues with new theories, while Yin’s version of CSM as more effective for extending well-known issues with extant theories. Distinctive from the above two versions of CSM, the Yin-Yang Method will be more effective for resolving debated perspectives so as to integrate diverse theories. Hence, for the purpose of building theories through case studies, Eisenhardt’s version of CSM and the Yin-Yang Method are more valuable than Yin’s version of CSM. In sum, the data collection for maximizing contrasting cases is the fourth unique feature of Yin-Yang Method and also the fourth revision of Eisenhardt’s version of CSM.
Step 4: Data Coding

The next step in grounded case study is data coding for categorization. Data coding is a process of conceptualizing (beyond describing) the empirical substance grounded in data, and it provides a set of condensed and abstract indicators of various properties and dimensions of each category as construct (Charmaz, 2006; Glaser, 1978). In addition, “a striking feature of research to build theory from case studies is the frequent overlap of data analysis with data collection” (Eisenhardt, 1989, p. 538), which refers to the principle of GTM that data coding starts in the midst of data collection (Glaser & Strauss, 1967). This is largely due to the requirement of GTM for a constant comparison between old and new data as well as diverse categories until the point of theoretical saturation is reached when no more new properties or dimensions of each category as well as a core category will emerge again (Glaser, 1978). We regard data coding as the fifth step of Yin-Yang Method similar to GTM (cf. Eisenhardt, 1989).

More specifically, in the process of constant comparison, there are three types of data coding: open coding, selective coding, and theoretical coding (Glaser, 1978). Open coding refers to the initial coding to identify the emerging patterns of events as categories (concepts); selected coding refers to the focused coding via the use of the most significant and most frequent initial codes to sift through and synthesize a large amount of data to further conceptualize categories; in contrast to the above two substantive coding, theoretical coding is a process of conceptualizing “how the substantive codes may relate to each other as hypotheses to be integrated into a theory” (Glaser, 1978, p. 72). This is often done around a core category, which is the most central to other key categories and accounts for the largest portion of data variation, thus emerging toward an integrative theoretical framework (Glaser, 1978). It is worth noting that memo-writing is critical to all types of coding (e.g., word-by-word coding, line-by-line coding, and incident-by-incident coding) for theoretical conceptualization (Charmaz, 2006).

The Yin-Yang Method advocates the focus on events (incidents) as the indicators of category’s properties or dimensions, so the event-by-event coding is recommended to compare such events and identify the emerging patterns of events as categories (Charmaz, 2006). I define the notion of event in broad terms, including the decisions and actions as well as their conditions and the related results. We can focus on events, especially critical ones, because events have both content and process dimensions (Campbell, 2004). We can code the events according to the typical procedure of content analysis (Yin, 2009). First, we can identify all specific events as the unit of coding. Second, we can code each event in terms of its specific substance
content. Third, we can categorize the related codes into the open-ended groups. Fourth, we can compare and further categorize the set of grouped codes into the higher level meta-categories of spatial content. Fifth, we can also compare and further categorize the set of grouped codes into the higher level meta-categories of temporal process. Sixth, we can repeat this procedure in the whole process, first in the open coding to identify potential categories, then in the selective coding to verify the identified categories (especially regarding those critical events as key incidents with nontrivial impact), and last in the theoretical coding to develop a core category as the central theme for an integrative framework. In sum, this step is the fifth unique feature of Yin-Yang Method and also the fifth revision of Eisenhardt’s version of CSM.

**Step 5: Constant Case Comparison**
As the fifth step of grounded case study, the recommended procedures of both within-case and cross-case analyses can be adopted (Eisenhardt, 1989, pp. 539–541). This procedural step is a recursive or iterative process of integrating data analysis with data collection. It is worth noting that this step and the last step are both procedures related to the abductive approach in the sense that a case study starts with an inductive approach concerning the emergence of categories, and then it shifts to a deductive approach concerning the verification of such categories (Charmaz, 2006). This step is tied particularly closely with the constant comparison between the “Yin” and “Yang” cases. In sum, the further revised approach of abduction and its integration into the Yin-Yang Method is the sixth unique feature and also the sixth revision of Eisenhardt’s version of CSM.

**Steps 6–8: Theory Development, Literature Comparison, and Research Closure**
Different from the steps so far, the remaining steps will shift the focus from data to theory. The last three steps of grounded case study include (1) theory development, (2) literature comparison, and (3) research closure (Eisenhardt, 1989, pp. 541–545). Specifically, the sixth step is to generate insights into the repeated patterns of data as the emerging categories (including the core one) as well as their causal relationships as theoretical hypotheses; the seventh step is to compare the newly developed concepts and hypotheses with those in the broad extant literature to enhance the validity and generalizability of the new concepts and hypotheses; the eighth step is to end the theory-building process when theoretical saturation is reached (Glaser & Strauss, 1967). Theoretical saturation
refers to the mature status of all potential categories or theories when no new properties or insights ever emerge from the fresh data or categories (Glaser, 1978). For instance, the identification and verification of core category can be the basic indicator of theoretical saturation concerning theoretical development.

In the last three steps, the Yin-Yang Method is highly unique because it can take full advantage of the frame of Yin-Yang Balancing by reframing those distinctive, inconsistent, ambiguous, and even contradictory constructs into useful dualities as the opposites-in-unity (e.g., global-local balancing, competition-cooperation balancing, exploration-exploitation balancing, relevance-rigor balancing, and complexity-simplicity as unity-in-diversity balancing). In this sense, we can transform the heuristic rubrics adopted at the initial stage of grounded case study into corresponding theoretical themes. Hence, the Yin-Yang Method is consistent with abductive logic and constructivist view (Charmaz, 2006), thus as a spiral from heuristic rubrics to data categories and also from data categories to theoretical themes. In sum, the last three steps are the last three unique features of Yin-Yang Method and also the last three revisions of Eisenhardt’s version of CSM.

I must point out that the above discussion focuses on an ideal type of the Yin-Yang Method in theory. In practice, one must tolerate various deviations from the ideal type to adapt to diverse research situations. There are a few practical concerns worth mentioning. First, one must select a critical debate as the focus of a study. This is not always easy to find, so an initial wide literature review is essential. Second, the more challenging step is to find those good cases as pairs to compare, especially the ones that truly represent the two sides of the debate. This is often a trial-and-error process. Third, perhaps the most challenging step is to discover the novel ideas for theory-building so as to integrate the two sides of the debate into one more complete theory. This is similar to the challenge of developing the so-called “theoretical sensitivity” (Glaser & Strauss, 1967). In this regard, the scheme of metaphor can be highly effective in sharpening the “theoretical sensitivity” by making the novel familiar and making the familiar novel, which are the two core functions of metaphor (Gordon, 1961). In general, intuition is expected to enhance the “theoretical sensitivity” by facilitating overall creativity, especially given the contexts complexity and ambiguity, which is the core of the Eastern methodology of “Wu.”

Further, I fully recognize the unique strengths and weaknesses of this proposed new version. In terms of its strength, this method is easier for inexperienced young scholar to apply because it not only allows, but also
requires well-defined research questions as well as a comprehensive literature review before selecting cases, thus much easier for the young scholars to engage in their case studies. Another major strength is that it provides two constantly comparative perspectives to keep the young scholars open-minded, thus easier to discover something novel due to the constant and maximum comparisons. In addition to the above two major strengths, the new version extends the strengths of GTM and CSM by integrating them, including the integration of the two different versions of CSM (Eisenhardt’s and Yin’s versions). In particular, the new version extends the eight-step procedure of Eisenhardt’s version into a nine-step procedure, and also enhances the eight steps in Eisenhardt’s version. As compared to Yin’s version, the new version enhances the strengths of both literature review and theoretical guide, but it avoids the inherent problems of Yin’s version in terms of close-mindedness derived from biased literature review as well as for theory-testing rather than not for theory-building. Consistent with the frame of Yin-Yang Balancing, however, the new version has its due weaknesses. Perhaps the biggest weakness of the new version is the difficulty to keep an unbiased open mind toward the two sides of a debate throughout the entire process of case study. However, the maximum comparison of contrasting views and contrasting case evidence should help keep the mind open to diverse possibilities, especially in the contexts of complexity and ambiguity with the scheme of metaphor. The other major weakness is that the new version is not effective in all contexts, so each of the three versions of CSM has its unique strengths and weaknesses contingent upon the different requirements in diverse contexts.

Finally, I should explicate the unique strengths of the three versions of CSM. In general terms, Eisenhardt’s version is uniquely effective for discovering little-known issues with new theories, while Yin’s version is uniquely effective for extending well-known issues with extant theories. The unique value of Yin-Yang Method lies in its special ability to balance the controversial perspectives so as to integrate diverse theories, so the Yin-Yang Method is the most effective for the contexts of complexity and ambiguity with the scheme of metaphor rather than the contexts of simplicity and clarity with the method of logical analysis. Similarly, each of the three versions has its unique weaknesses related to the contexts it is not designed for. For example, the Yin-Yang Method will be least effective in exploring little known issues or phenomena without much literature or well-known issues without much debate. Further, even though the Yin-Yang Method can be applied to theory-testing, it must test two different theories; the more different, the better. In sum, for the purposes of closing the
relevance-rigor gap and complexity-simplicity gap, the Yin-Yang Method can be argued as the most effective among the three versions of CSM as well as more effective than GTM.

**CONCLUSION**

The field of management research is far behind the needs for insights into management practice largely due to the increasing gaps between relevance and rigor as well as between complex problems and simplistic solutions. To satisfy the demands of management practice, management research must overcome the above two critical gaps. However, the root cause of the two problems lies in the orthodox philosophy of science in the West, so a solution may be found in the orthodox philosophy of wisdom in the East, which has been largely ignored in the West. We share the views that there are no inherent reasons why the Western theories, derived from the indigenous research in their context, have an inherent monopoly over the knowledge of management (Van de Ven & Jing, 2012) as well as why certain indigenous theories derived from the Chinese context cannot become universal theories (Leung, 2009), so the indigenous research in diverse cultural contexts should be encouraged (March, 2005).

It is an exciting time for the indigenous research in the East because it can play a central role in the new encounter between the West and the East in the modern era of globalization (Chen & Miller, 2011; Li, in press). If the new encounter can facilitate the Eastern cultural modernization as the first-round Renaissance and Enlightenment in the East, it may also foster the second-round Renaissance and Enlightenment in the West. The greatest challenge for us is to achieve a geocentric integration between the West and the East at the fundamental level of philosophy, while the biggest hope is that the Eastern philosophy of wisdom has the potential to facilitate this geocentric integration. The Eastern philosophy of wisdom, especially its epistemology of Yin-Yang Balancing as the Eastern cognitive frame, can shed light on the enduring debates over theory and practice as well as qualitative and quantitative methods to help solve the problems of relevance-rigor gap and complexity-simplicity gap. In general, the frame of Yin-Yang Balancing is effective for the contexts of complexity and ambiguity with the scheme of metaphor (metaphor is rooted in “Wu” as intuitive imagination). In particular, it has the capacity to reframe ambiguity from a negative problem (inconsistency) to a positive solution (completeness) as well as balance logical analysis with intuitive imagination.
Hence, the two general contributions of the Eastern philosophy of wisdom to the geocentric meta-paradigm are the perspective of duality related to the frame of Yin-Yang Balancing and the scheme of metaphor related to “Wu” as intuitive imagination. The two specific contributions of this chapter are the introduction of the geocentric meta-paradigm of creative cognition and its applications to the relevance-rigor debate and the Yin-Yang Method.

Future research agenda lies in three directions. First, we should refine the proposed geocentric meta-paradigm of creative and general cognition as the future shared integrative framework for all research in both the West and the East. Second, we should refine the Yin-Yang Method to make it formally established as one of the three versions of CSM in addition to Eisenhardt’s and Yin’s CSM. Third, we should apply the meta-paradigm to the relevance-rigor debate and reframe the debate into a duality so as to balance them as the opposites-in-unity, especially by taking advantage of the Yin-Yang Method that is best at addressing the relevance-rigor gap and complexity-simplicity gap because the method is the only method to integrate diverse views, theories, or disciplines into balanced unities by embracing contradiction, complexity, and ambiguity via the frame of Yin-Yang Balancing and “Wu” as intuitive imagination.

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