

**T.C.
GEBZE TECHNICAL UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES**

**ORGANIZATIONAL WISDOM AND ITS IMPACT ON FIRM
INNOVATIVENESS AND FINANCIAL PERFORMANCE**

**SÜMEYYE YÜCEBİLGİLİ KIRÇOVALI
DOCTORAL THESIS
DEPARTMENT OF MANAGEMENT**

**GEBZE
2015**

**T.C.
GEBZE TECHNICAL UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES**

**ORGANIZATIONAL WISDOM AND ITS IMPACT
ON FIRM INNOVATIVENESS AND FINANCIAL
PERFORMANCE**

**SÜMEYYE YÜCEBİLGİLİ KIRÇOVALI
DOCTORAL THESIS
DEPARTMENT OF MANAGEMENT**

**THESIS ADVISOR
PROF. DR. ALİ EKBER AKGÜN**

**GEBZE
2015**

DOKTORA TEZİ JÜRİ ONAY SAYFASI

GTÜ Sosyal Bilimler Enstitüsü Yönetim Kurulu'nun tarih ve/..... sayılı kararıyla oluşturulan jüri tarafından/.../20... tarihinde tez savunma sınavı yapılan'ın tez çalışmasıAnabilim Dalında DOKTORA tezi olarak kabul edilmiştir.

JÜRİ

ÜYE

(TEZ DANIŞMANI)

: Prof. Dr. Ali Ekber Akçınar

ÜYE

: Prof. Dr. Halit Kestel

ÜYE

: Prof. Dr. Hüseyin İnci

ÜYE

: Prof. Dr. Ayşe Tünel

ÜYE

: Yrd. Doç. Dr. İnci Duran

ONAY

GTÜ Sosyal Bilimler Enstitüsü Yönetim Kurulu'nun/...../20... tarih ve/..... sayılı kararı.

İMZA/MÜHÜR

SUMMARY

As a fascinating concept, the term organizational wisdom started to attract many researchers from a variety of disciplines. Nevertheless, how the organizational wisdom related variables or practices, such as reasoning, intuition, virtue, practical wisdom, and aesthetic capacity, impact the firm product and process innovativeness, and financial performance is rarely addressed empirically in the literature.

By studying 202 firms, we found that a) intuition and aesthetic capacity practices are positively related to firm product innovativeness, and b) reasoning, intuition and aesthetic capacity practices are positively related to firm process innovativeness. Interestingly, we found that virtue and prudence are not statistically related to the firm product and process innovativeness. Also, we found that firm product innovativeness partially mediates the relationship between organizational wisdom practices and firm financial performance. We next found that environmental uncertainty is positively related to the virtue and prudence practices. We further explored that while environmental uncertainty is positively related to the virtue and prudence practices, virtue and prudence practices are related to the reasoning, intuition and aesthetic capacity practices based on the our post-hoc analyses. Finally, we discussed the managerial and theoretical implications of the study.

Keywords: *Organizational wisdom, product innovativeness, process innovativeness, firm performance.*

ÖZET

Önemli bir kavram olan örgütsel bilgelik, birçok alandaki arařtırmacıların dikkatini çekmektedir. Fakat örgütsel bilgeliğin bileşenlerini oluřturan mantıksal düşünme, hissiyat, erdemlilik, pratik olma ve estetik yetenek gibi deęişkenlerin veya örgütsel uygulamaların, örgütün ürün ve süreç yenilikçilięi ve finansal performansı üzerine olan etkilerini inceleyen ampirik çalışmalar çok azdır.

202 firmanın incelenmesi sonucunda a) hissiyat ve estetik yeteneęi ürün yenilikçilięi ile b) mantıksal düşünme, hissiyat ve estetik yeteneęinin süreç yenilikçilięi ile iliřkili olduęu bulunmuřtur. İlginç bir şekilde erdemlilik ve pratiklik uygulamalarının ürün ve süreç yenilikçilięi ile doğrudan iliřkili olmadığı bulunmuřtur. Ayrıca ürün yenilikçilięinin örgütsel bilgelik uygulamaları ile firmanın finansal performansı arasında kısmi bir aracı rol oynadıęı bulunmuřtur. İlaveten çevresel belirsizliğin erdemlilik ve pratiklik uygulamalarını etkiledięi ve bu uygulamaların da mantıksal düşünme, hissiyat ve estetik uygulamalarını etkiledięi bulunmuřtur. Son olarak tezin teorik ve yönetsel uygulamaları anlatılmıřtır.

Anahtar Kelimeler: *Örgütsel bilgelik, ürün yenilikçilięi, süreç yenilikçilięi, firma performansı.*

ACKNOWLEDGEMENT

I would like to express my special appreciation and thanks to my advisor Prof. Dr. Ali Ekber Akgün, he has been a tremendous mentor for me. I would like to thank you for encouraging my research and for allowing me to grow as a research scientist. His advice on both research as well as on my career have been priceless. I would also like to thank my committee members, Prof. Dr. Halit Keskin and Asst. Prof. İnci Dursun for serving as my committee members even at hardship. I also want to thank them for letting my defense be an enjoyable moment, and for their brilliant comments and suggestions. I would especially like to thank research assistants. All of them have been there to support me when I collected data for my Ph.D thesis.

A special thanks to my family. Words cannot express how grateful I am to my beloved husband who spent sleepless nights with and was always my support in the moments when there was no one to answer my queries.

CONTENTS

	<u>Page</u>
SUMMARY	i
ÖZET	ii
ACKNOWLEDGEMENT	iii
CONTENTS	iv
ABBREVIATIONS	v
FIGURES	vi
TABLES	vii
1. INTRODUCTION	1
2. LITERATURE REVIEW	6
2.1. The Concept of Wisdom and Organizational Wisdom	6
2.2. Organizational Wisdom As a Firm Competence	10
2.3. Components of Organizational Wisdom	12
2.3.1. Reasoning Practice	14
2.3.2. Intuitive Practice	15
2.3.3. Virtue Practice	16
2.3.4. Prudence Wisdom	18
2.3.5. Aesthetic Practice	19
3. HYPOTHESIS DEVELOPMENT	22
3.1. Organizational Wisdom and Firm Innovativeness	22
3.2. Organizational Wisdom and Firm Financial Performance	26
3.3. Organizational Wisdom, Environmental Uncertainty and Firm Innovativeness	28
4. RESEARCH DESIGN	31
4.1. Measures	31
4.2. Sampling	33
5. ANALYSIS AND RESULTS	35
5.1. Measure Validity and Reliability	35
5.2. Common Method Variance Assessment	38
5.3. Hypothesis Testing	40
6. DISCUSSIONS AND IMPLICATIONS	44
6.1. Theoretical Discussions	44
6.2. Managerial Implications	53
7. LIMITATIONS AND FUTURE RESEARCH	55
8. CONCLUSION	58
REFERENCES	59
CURRICULUM VITAE	75
APPENDICES	76

ABBREVIATIONS

Abbreviation: Explanation

TIM: Technology and Innovation Management

KBV: Knowledge-based View

IT: Information Technology

R&D: Research and Development

RBV: Resource-based View

FIGURES

<u>Figure No</u>	<u>Page</u>
1.1 Research Model	5
6.1 Actual Model	50
6.2 Modified Model	51

TABLES

<u>Table No</u>	<u>Page</u>
5.1 Discriminant Validity of Construct Measures Factor Rotation	36
5.2 CFA Result of Organizational Wisdom Variables	36
5.3 Correlations and Descriptive Statistics	39
5.4 Covariances among Variables	40
5.5 Results of Hypotheses	43
6.1 Results of Modified Model	52

1. INTRODUCTION

With increasing rate of technological changes, customer requirements and needs, and competitive pressures, firms use their resources in general and their stock of knowledge in particular to become more successful in their innovation efforts (Shin, 2004; Choi and Jong, 2010). In this respect, a plethora of studies in the Technology and Innovation Management (TIM) literature puts the concept of “knowledge” in the center of their research interest (Grant, 1996; Hall and Andriani, 2002; Hargadon, 1998; Nonaka and Takeuchi, 1995; Cooper, 2003). Those studies especially emphasize that the primary task of the firms is to reconfigure and exploit existing knowledge assets and resources and to explore new knowledge to contribute the innovativeness of them and to their competitive advantage (Hall and Andriani, 2002; Grant, 1996; Nonaka and Takeuchi, 1995; Mohrman, Finegold and Mohrman, 2003). For instance, examining the knowledge-innovation link, Nonaka and Takeuchi (1995) highlighted that innovation is the most important organizational business activity that is based on knowledge management.

However, recently some researchers started to criticize the knowledge-based approach of organizations, which has a general assumption that more information and knowledge (e.g., a *stock of knowledge*) leads to a greater success of innovation efforts (Bierly, Kessler and Christensen, 2000; Brown and Starkey, 2000; Rooney and McKenna, 2005; Rowley, 2006). According to these researchers, the literature on the knowledge-based view (KBV) focused too strongly on maximising knowledge and knowledge access and sharing, with insufficient focus on the selection of what knowledge to select, apply and institutionalize in the organizations (Bierly, Kessler and Christensen, 2000). In this respect, van Loon (2000), for example, noted that:

“The imperative for generating more and more (technological) knowledge and expertise is a response to over-sensitivity in perceiving risk. Paradoxically, this risk society view can mean that the more knowledge we call on to deal with risk, the more risks we create, which in turn leads us to call for more knowledge in an infinite regress.”

Rooney and McKenna (2007, p. 114) also wrote that;

“This knowledge-based approach is a path to entropy so long as answers to the world’s problems are considered only in terms of developing increasingly complex epistemic structures. This shift is relevant to contemporary intellectual practices in highly complex environments because, although highly specialized scientific approaches might bring clarity, this specialized clarity can be deceptive. That is because the separate branches of knowledge are not designed to reveal a larger, coherent reality.”

Indeed, the studies indicated that the link between knowledge-based approach of organizations manifested as information technology (IT) intensity and Research and

Development (R&D) spendings and organization performance and firm innovativeness remains fuzzy in the literature. For example, Hitt and Brynjolfsson (1996) found that firm investment in ITs may have differential effects on productivity, consumer surplus, and performance. Arts et al., (2010) demonstrated that there is not a linear positive relationship between R&D spending and product announcements. Cantner, Joel and Schmid (2011) showed that there is no a significant effect of knowledge management on the share of cost reductions with process innovation. Accordingly, the proponents of this assumption argued that a success is not just related to the account/stock of knowledge available in firms, but to the firm's ability to make the best use of what it knows, and to know what is strategically most important to it. Further, these studies noted that something is lacking in the KBV, because merely having knowledge does not entail its use in judging rightly, soundly, or justly.

In this regard, some researchers highlighted the concept of “organizational wisdom” in understanding how a firm makes best use of its knowledge. Rooney and McKenna (2005, p. 307), for instance, suggested that;

The discourse on knowledge-based economies is limited by an inadequate conception of knowledge that does not embrace the axiological dimension of knowledge that leads to wisdom: a wisdom-based renaissance of humanistic epistemology is needed to avoid increasing social dysfunction and a lack of wisdom in complex technological societies. Organizational wisdom considers ways that organizations might rise above the mere development and leveraging of knowledge and focus on the higher order objective of using knowledge in efficient and effective ways.

Bierly et al. (2000) also offered that “wisdom relates to the ability to effectively choose and apply the appropriate knowledge in a given situation” (p. 597). Rowley (2006) suggested, for example, that wisdom represents the ability to make the right use of knowledge. The researchers especially noted that wisdom is the ability to make right use of knowledge, or the capacity to judge rightly in matters relating to organizational life and related issues (Ostenfeld, 2003). In particular, according to these researchers, organizational wisdom is more than just use of knowledge and also involves practical actions, judgement, and ethical decisions. Indeed, as firm innovation efforts are highly complex and knowledge intensive that require high analytical, judgmental, ethical, and other demands on their processes, considering the organizational wisdom provides a more appropriate way to address “knowledge work” and related topics in the the firm innovation efforts. Specifically,

Organizational wisdom creates and delivers a value to a firm and its customers by using the existing stock of knowledge. Value is understood to be any necessities, comforts or conveniences of customers. For example, when a firm's market is declining and it is

threatened by financial loss, the management will realize that the primal reason for this is that the firm is failing to provide the value that its customers want. This does not mean that customers do not want some value that the firm can provide; just not the value that the firm is currently providing. Therefore, management will start searching for ways to provide the value the customers now want by use of existing knowledge (Mick, Bateman and 2009).

Organizational wisdom leverages the opportunity identification of firms. As different individuals possess different pieces of information in the organization, organizational wisdoms bring that diverse knowledge together to use them more effectively. In particular, a wise use of knowledge incorporates the ability to question the ontological basis of knowledge, as well as allowing for insight, intuition, imagination and creativity to have a role in the organization.

Organizational wisdom improves the opportunity evaluation of firms. Organizational wisdom provides managers and people with the capacity to distinguish between change as fad, and change that is necessary to adapt to changing circumstance by use of knowledge. Here, people ask fundamental questions about the nature of change by considering the changing ontologies and frames of understanding upon which such changes are predicated.

Although organizational wisdom is a critical for organizational activities, it still remains a fairly nebulous concept and its application to innovation pursuits is that much more elusive. Indeed, despite its obvious value for firms, organizational wisdom, as a concrete concept, is largely missing and undervalued in the TIM literature (Rooney and McKenna, 2005). It is interesting to note here that previous works on organizational wisdom are strictly conceptual oriented solely toward the development of knowledge base in the literature, and the resulting theory on the organizational wisdom was not empirically tested as an internal firm competency. What organizational wisdom is comprised of, and what is a robust conceptual framework that clearly defines it and identifies what practices are involved in it is missing in the literature as noted by Rowley (2006) and Rooney and McKenna (2005). Also, from a managerial perspective, there is a lack of study operationalizing the concept of organizational wisdom and testing its impact on firm innovation efforts (Kessler, 2006). Further, while the moderating role of environmental uncertainty in the relationships between managerial and individual wisdom, and performance has been argued in the literature (Small, 2004; Yang, 2011), its role on the organizational wisdom was not investigated at the organizational level (Rowley, 2006). Indeed, some implicit arguments suggested that environmental uncertainty triggers exceptional competency for formulating appropriate, feasible and reflective judgments in general and wisdom in particular (Kitchener and Brenner 1990).

To solve above issues, based on the extended literature, we conceptualize organizational wisdom as a firm's competency to develop organizational practices in using information/knowledge, judgments, ethic, virtue, emotions/feelings, and actions of people for effective decision making and organizational well being (Bierly, Kessler and Christensen, 2000; Jones, 2005; Rowley, 2006; Küpers, 2007; Rooney and McKenna, 2008). From an operational perspective, consistent with McKenna, Rooney and Boal (2009), we put forward that the degree to which organizational wisdom is displayed can be evaluated by how well it conforms to five practices, such that; 1) reasoning (i.e., using collective reason and careful observations), 2) intuition (i.e., taking non-rational and subjective elements into account when making organizational related decisions), 3) virtue (i.e., value humane and virtuous outcomes), 4) prudence (i.e., taking actions that are practical and oriented toward everyday life), and 5) aesthetic capacity (i.e., facilitating communication among people artfully). It should also be noted that the wisdom practices proposed by those authors were argued in the leadership context (i.e., individual level) rather than from an organizational perspective (i.e., firm level), and they were highly abstract and implicit, besides not being clearly conceptualized and operationalized.

Therefore, as shown in Figure 1.1, this study investigates: 1) the role of co-variant organizational wisdom practices (e.g., collective reasoning, intuition and virtue, practical wisdom, and esthetic capability) on the firm product and process innovativeness, 2) the mediating role of firm product and process innovativeness between organizational wisdom and firm financial performance, and 3) the antecedent role of environmental uncertainty on the organizational wisdom practices.

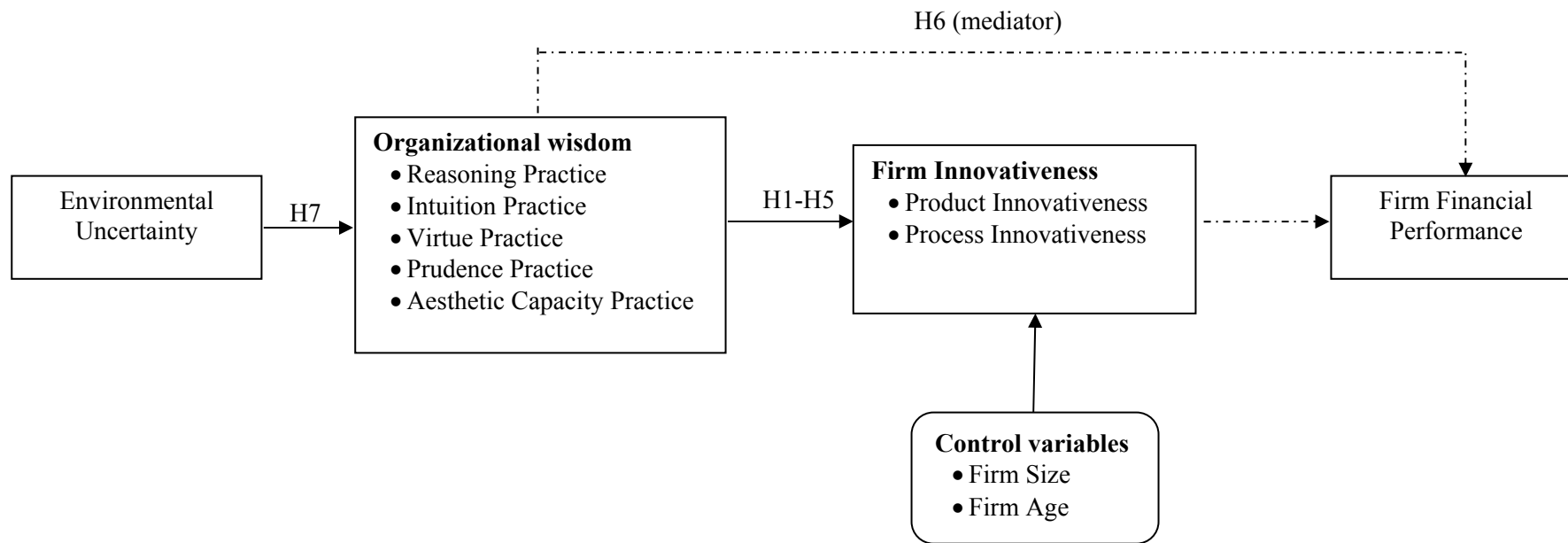


Figure 1.1
Research Model

2. LITERATURE REVIEW

2.1. The Concept of Wisdom and Organizational Wisdom

The concept of “wisdom” developed around 5000 years ago and has been discussed in philosophical context ever since (Izak, 2013). Socrates, for example, argued that love, character, harmony, beauty, and truth contribute to wisdom; and that in order to be wise, individuals should avoid faddishness by seeking timeless truths (Rooney and McKenna, 2008). Socrates also mentioned that expertise, knowledge, and wisdom are sources of power that should be used well for “practical” and “political” purposes to bring about well-being (Rooney and McKenna, 2008). Plato, in his Platonic dialogues and Plato’s public (Robinson, 1990; Izak, 2013), noted that wisdom could be approached as a special quality possessed by those who contemplate life (i.e., sophia), the practical application of good judgment to human conduct (i.e., phronesis) and, scientific knowledge concerning the nature of things (i.e., episteme). Aristotle, following the Plato, viewed the wisdom concept as phronesis (i.e., prudence), balance, virtue, and aesthetics in his “Nicomachean Ethics” (Rooney and McKenna, 2008; Izak, 2013). Aristotle further proposed phronesis as the form of practical wisdom and sophia as the form of philosophical wisdom combined with intuitive reason, both of which are needed to inform wise action (Kekes, 1995).

These philosophical arguments later influenced the contemporary psychology literature. In the psychology literature, researchers moved from a broad definition of wisdom, as an excellence in mind and virtue, to a specific characterization of wisdom, such as an expert knowledge system dealing with the fundamental pragmatics of life (Baltes and Staudinger 2000; Pasupathi et al. 2001). For example, Sternberg (1998) noted that the term of wisdom indicates the application of tacit knowledge as mediated by values toward the goal of achieving a common good under the difficult and complex circumstances. Kitchener and Brenner (1990) indicated that wisdom represents the awareness of the unknown events, and implications of knowledge for real-world problem solving and judgment. Meacham (1990) said that wisdom is the using knowledge with an understanding of its fallibility, with caution, and concern for its social consequences. Jashapara (2004) mentioned that wisdom is the ability to act critically or practically in a given situation.

In the psychology literature, the common theme on the concept of wisdom is that wisdom is manifested in the characteristics of (1) “*reflectiveness*”, such as individuals consider events and their grounds and consequences, have foresight of the future, and take a broad view of events, and (2) “*judgement*”, such that individuals appraise and choose the appropriate goals for events and future, have sound judgements about events, and use their knowledge to achieve their life and event related objectives (Sternberg, 2004, 2005). In this respect, Jessup and Valacich (2003), for instance, perceived wisdom as accumulated knowledge, which allows individuals to understand how to apply concepts from one domain to new situations or problems. Awad and Ghaziri (2004, p. 40) also noted that “wisdom is the highest level of abstraction, with vision foresight and the ability to see beyond the horizon.”

In the psychology literature, researchers also viewed the wisdom as not only a cognitive phenomenon but also “emotional” and “motivational” phenomenon (Baltes and Kunzmann, 2004). For example, Birren and Fisher (1990) defined wisdom as “the integration of the affective, conative, and cognitive aspects of human abilities in response to life’s tasks and problems.” That is, wisdom relies on, and requires, experiential knowledge and implicit knowing in selecting courses of action involving a tight integration of cognition and affect (Küpers 2007).

In the psychology literature, wisdom was further contented as an “action-oriented” phenomenon. For example, Meacham argued that wisdom was not in what was known but rather in the manner in which knowledge was held, and how that knowledge was put to use. That is, individuals not only hold justified true belief but uses their intellectual grasp and insight to practically apply it.

Besides the concept of “individual wisdom” in the psychology literature, the term of wisdom was also argued in the management literature, which is often closely linked or confronted with philosophical and, more typically, psychological frameworks, such as those created by Aristotale, Sternberg and Baltes. Researchers mostly discussed the concept of wisdom in the context of leadership in the management literature (Korac-Kakabadse, Korac-Kakabadse, and Kouzmin, 2001; Biloslavo and McKenna, 2013). Malan and Kriger (1998), for instance, defined managerial wisdom as “*the ability to detect those fine nuances between what is right and what is not . . . the ability to capture the meaning of several often contradictory signals and stimuli, to interpret them in a holistic and integrative manner, to learn from them, and to act on them.*” In this stream of research, (managerial) wisdom is perceived as an intrapersonal quality of leaders to possess if they are to exert outstanding leadership. According to the researchers, leaders strive to discover fine shades of variability

within their organizations, their immediate work group, and their perceived competitive environments-which is a continually unfolding world of flux, change, and transformation. Over time, out of this constant discovery process, managerial wisdom emerges, which guides their use of knowledge in making the right decision for events (e.g. Bierly et al., 2000).

In addition to the managerial wisdom, the term of “organizational wisdom” was also argued in the management literature. Unlike to managerial wisdom, organizational wisdom was usually perceived as a collective and interactive process in the literature. Organizational wisdom was defined in general as the collection, transference, and integration of individuals’ wisdom and the use of institutional and social processes (e.g., structure, culture, and leadership) for strategic action (Kessler, 2006). According to this definition, organizations can act wisely, even though it may not be possible to ascribe wisdom to any individual actor within the organization. In this vein, Staudinger (1996), for instance, suggested that wisdom might be considered a phenomenon that has a higher likelihood of being observed when multiple minds are interacting.

The researchers also argued that organizational wisdom involves the sophisticated and sensitive use of knowledge, which is embedded in, or exhibited by action, and includes the judgements that accommodate multiple realities, wider social and ethical considerations. For example, Bierly, Kessler and Christensen (2000) contended that wisdom relates to the ability to effectively choose and apply appropriate knowledge in a given situation, and then define wisdom as “an action-oriented concept, geared to applying appropriate organizational knowledge during planning, decision making and implementation (or action) stages” (p. 601). Rowley (2006) defined organizational wisdom as the judgment that accommodates multiple realities and wider social and ethical considerations, and is exercised in decision making and the implementation of decisions. Walter (1993) indicated that wisdom is an integration of thought and action in maintaining and enhancing the good. He also mentioned that, in the organizational context, wisdom emerges from contextual relationship within which wise people and groups are able to reflect on a situation by evaluating and making choices.

The researchers further highlighted the two streams of research in the dual nature of wisdom, as 1) “process” and 2) “qualities” view of wisdom due to multiple perspectives on the wisdom in the management literature (Matsuda, 1992; Prewitt, 2002; Linley, 2003; Yang, 2011).

In the process view of organizational wisdom, wisdom was perceived as a processual “quality” that emerges in such “contextual” interrelations in which wise people and groups are able to reflect on a situation through evaluating and making choices. Such that wisdom was

1) continuously created and changed in the course of being practiced, and 2) understood as constituted and reconstituted in the dynamics of everyday experiential practice as “experience is knowing.” Accordingly, wisdom was not something individuals “have”. Rather it was a process of enacted interrelations by engaging in interior individual dimensions complemented by a corresponding behaviour, communal activities and systemic structures and functions. Especially, it was interpreted as a relational accomplishment that is a thread of community and as a systemic network of processes and meanings. In this stream of research, related to various forms of (shared) knowledge and imagination, wisdom was also seen as a socio-cultural process. For instance, McNamee (1998) defined wisdom as a communal activity that is engendered in the conversations throughout and around an organization, and proposed that wisdom emerges through the processes of interacting in organizations. Sampson (1998) asserted that wisdom is better understood as properties of social discourse or conversation. Torber (1998) saw the wisdom as an ongoing integration of firstperson, second-person, and third-person inquiry in the midst of action with others. Srivastva and Saatçığılu (1998) argued that wisdom is created through relationships, and defined wisdom as “a virtue of many” (p. 270). Küpers (2007) viewed wisdom as a process of enacted integration by engaging in individual reasoning and emotional regulation, complemented by a corresponding behavior participating in communal activities and social-cultural functions. Finally, McKenna, Rooney, and Boal (2009) proposed that wisdom “is a process that brings together the rational and the transcendent, the prosaic and higher virtues, the short- and long-terms, the contingent and the absolute, and the self and the collective” (p. 185).

It can be seen that this process view of organizational wisdom specifically emphasized the “organizational capability” view of organizations. Capability refers to the action taken on capacity in order to realize this potential. According to Amit and Schoemaker (1993), recourses are assets that are either owned or controlled by a firm, whereas capabilities refer to its ability to exploit and combine resources, through organizational routines, in order to accomplish its targets. Similarly, Collis (1994) described capabilities as the socially complex processes that determine the efficiency and effectiveness by which organizations are able to transform inputs into outputs. Organizational capability is the “ability to perform repeatedly a productive task which relates either directly or indirectly to a firm's capacity for creating value through effecting the transformation of inputs into outputs” (Grant, 1996; Helfat and Peteraf, 2003). As the foregoing discussions suggest, organizational capabilities are generally conceptualized as socially constructed entities, organized in networks of knowledge carrying relations among individuals and inanimate firm assets that, as a whole, aim at performing

efficiently and effectively a given task. In this regard, organizational capabilities are "firm specific" and "socially complex" attributes which reside within corporate culture and network of employees (Amit and Schoemaker 1993; Collis 1994). As such, organizational capabilities are built rather than bought (Makadok 2001).

Quality view of organizational wisdom indicated that wisdom is an *innate* quality, which is deeply veiled within people in the organization. For example, Jones (2005) suggested that wisdom is an innate quality, a mental faculty that brings an awareness of the proper means and ends of human activity, including matters such as business practices. Matsuda (1992) considered organizational wisdom to be equal to the capacity to resolve the problems encountered whilst optimally capitalizing on resources.

2.2. Organizational Wisdom as a Firm Competence

Based on the past writings in the literature, organizational wisdom appears to be an innate organizational ability or quality; however this ability/quality is veiled deep inside of each individual or practices. In addition, wisdom is not only embedded and entangled in distributed social practices and interactions, it becomes useful in "contextual settings" and interrelational processes. Largely informed by philosophical and historical analyses of the wisdom concept, we strive toward articulating a competency theory of wisdom and subsequently investigate how firms can be described within this theory's framework. Holliday and Chandler (1986) also asserted that wisdom is a complex of competencies; it cuts across the confines of particular knowledge-constitutive interests, and is expressed as exceptional understanding, judgment and communication skills, general competencies, interpersonal skills, and social unobtrusiveness.

The literature defines firm competence in multiple ways (Boyatzis and Boyatzis, 2008). We subscribe to the definition of Amit and Schoemaker (1993), because it is precise and fits with the distinction between the concepts of resource, competence, and capability. According to Amit and Schoemaker (1993), competence refers to a firm's capacity to deploy resources, usually in combination, using organizational processes, to affect a desired end, and thus represents "bundle of skills and technologies rather than a single, discrete skill or technology" (Hamel and Prahalad, 1994). Competence can therefore be portrayed as the ability to deploy

combinations of firm-specific resources to accomplish a given task or underpin sustainable competitive advantage for a specific firm competing in a particular product/service market (Teece et al. 1997; Eisenhardt and Martin, 2000; Wang, Lo and Yang, 2004). Stalk et al. (1992) also make a clear distinction between the capability and competencies. He perceived the organizational capability at the highest organizing level and as being directed towards the strategic purpose of the organization. Specific capabilities are achieved through the unique combination of organizational competencies. From this perspective, organizational competencies are a subset of capabilities and are concerned with acquiring, developing, managing and deploying resources of all types. Therefore, in line with Barman and MacIndoe (2012), our conceptualization of organizational wisdom indicates the implementation of wisdom related practices and does not denote the ability of an organization to execute routine practice. From a competence perspective, firms recognize their innate ability to act wisely, and embrace intent to make decisions and take actions that flow from consciously employing the elements of wisdom related practices (Ritter and Gemünde, 2004). Adapting a competence perspective provide some benefits to firms, such as:

- Organizational wisdom provides a “value” to firm as a source of sustainable competitive advantage by its tacitness, robustness, embeddedness. Indeed, organizational wisdom is tacit. It resists easy codification or communication, and based on more intuitive knowledge that cannot be fully articulated. Organizational wisdom is also robust. It retains its value in a changing environment. It is not tied to a particular set of external circumstances; therefore, it is more likely to retain value in the face of external change, and thereby contributes to the sustainability of a firm's competitive advantage. Further, organizational wisdom is located in the knowledge and skills of key employees; physical systems, such as computer databases, equipment, and software programs; managerial systems, such as incentive systems and reward structures; and organizational mission, culture, or values that screen and encourage different kinds of knowledge. Thus, organizations do not lose their wisdoms when employees leave the firms.
- Unlike the previous studies which separates the knowledge and wisdom, with a competence view, wisdom improves our understanding on the RBV of organization. For instance, literature argued that knowledge is separative and objective divides, differentiates, and is concerned merely with what can be done, whilst wisdom is synthetic and subjective, unites, blends and considers what should be done. While that is true at the individual level of analysis, at the organizational level of analysis,

wisdom is perceived as the capacity to put into action the most appropriate behaviour, taking into account what is known (knowledge), what does the most good (ethical and social considerations), and to act wisely. In a sense, wisdom is a means of making appropriate use of knowledge. Kessler (2006) also considers that wisdom represents the synthesis of knowledge-based potential with higher order visioning and practical implementation. Accordingly, this competence view highlights that organizations make sophisticated and sensitive use of knowledge. Specifically, as a firm asset, knowledge is the stocks accumulated in the organization, and wisdom is the choosing appropriate *time paths of flows of knowledge* over a period of time. The fundamental distinction between stocks and flows may be illustrated by the "bath tub" metaphor: at any moment in time, the stock of water is indicated by the level of water in the tub; it is the cumulative result of flows of water into the tub (through the tap) and out of it (through a leak). For instance, considering the R&D, the amount of water in the tub represents the stock of know-how at a particular moment in time (i.e., knowledge), whereas current R&D spending is represented by the water flowing in through the tap; the fact that know-how depreciates over time is represented by the flow of water leaking through the hole in the tub. A crucial point illustrated by the bathtub metaphor is that while flows can be adjusted instantaneously (i.e., wisdom), stocks cannot. It takes a consistent pattern of resource flows to accumulate a desired change in strategic asset stocks. Within this perspective, a firm's current strategy involves choosing optimal time paths of flows (i.e., wisdom), whereas its competitive position and hence its potential profitability is determined by the level of its stocks (i.e., knowledge).

2.3. Components of Organizational Wisdom

Based on the organizational level studies as well as the study of Rooney and McKenna (2008) and McKenna, Rooney and Boal (2009), we put forward that organizational wisdom can be seen as an identifiable entity composed of five practices, namely *reasoning*, *intuition*, *virtue*, *prudence*, and *aesthetic capacity*. Specifically, organizations that display wisdom should embody all five: (1) use reason and careful observation (i.e., collective reasoning), (2) take non-rational and subjective elements into account when making decisions (i.e., collective

intuition), (3) value humane and virtuous outcomes (i.e., collective virtuousness), (4) take actions that are practical and oriented toward everyday life (i.e., practical wisdom), and (5) be articulate, understand the esthetic dimensions of work, and seek intrinsic personal and social reward by contributing to the good life (i.e., organizational aesthetics capacity practice).

Here, the degree to which organizational wisdom is displayed can be evaluated by how well it conforms to these five practices. Those practices work together to produce organizational wisdom, but those practices by themselves are not wisdom. This is similar to the ancient Indian fable of the blind men and the elephant. One man, feeling the elephant's trunk, said it was a snake. Another, feeling its tusk, claimed it was a spear. Still another, feeling the elephant's leg, declared it was a tree. Although various parts of the elephant had important similarities with a snake, a spear, and a tree, the animal as a whole was something essentially different. Likewise, even though these practices of organizational wisdom can be identified, organizational wisdom itself is essentially different from any one of them. For example, reason and logic has often been contrasted with emotion and feeling, but what they both have in common is that they are sources of knowledge and generate meanings organizations rely and act on. Indeed, an organizational decision is rarely either intuitive or deliberative because both systems are functioning in parallel and interacting in complex ways (Hammond et al., 1987).

These practices also indicate that organizational wisdom can be learned or developed, and is comprised of information/knowledge, actions, emotions, ethics, judgment and virtueness. In a sense, these practices indicate the mechanisms of how people perceive, appraise, understand, and express knowledge, emotions, ethics, judgment, virtueness, and intuition in their interactions with others, and reflect the display and regulation of them among themselves, and how organizations evoke, inspire, elicit, and manage them. Accordingly, these practices provide a meso perspective, such that bridging the micro and macro level of wisdom, and remove the border between individual and organizational level of wisdom practices or components. Such that, the usage of these practices neither neglects the individual or the organizational level nor reduces organizational wisdom to one of those levels.

2.3.1. Reasoning Practice

The term of reasoning refers to finding out the relationship between the cause and the result through logical inference in the individual level of analysis. Specifically, reasoning is the process in which one individual to apply his/her mental activities through logical order/progress and regulations to solve problems (Walsh, 1994; Morgan and Palaniappan, 2009). The term of reasoning also refers to applying some principles generated from the known things to find out the unknown ones at the individual level. In this respect, Rosser (1994) pointed out that reasoning is the individual's ability to generate new message from the old information and develop special connections between presuppositions according systematic principles. However, it should be noted that common model of reasoning in its original form is based on closed-system logic with well-defined problems using causal reasoning at the individual level of analysis. Here, people were assumed to explicitly and consciously attend to all of the critical information in a problem space and apply rules or propositions to move them closer to a goal (Hayes, 1989).

At the organizational level of analysis, we propose that the term of reasoning should be perceived as a "collective" phenomenon – collective reasoning. Based on the Bacharach's (1999) theory of "we-thinking" at the group level of analysis, collective reasoning indicates an explanatory sense and conversation that occurs in a social context, involves people with differing views and requires delegating a monitoring function among people (Miller and Lin, 2014). Collective reasoning also indicates a joint conclusion that emerges from the people's considerations, their common knowledge, and their mutual responsiveness to these considerations, forming judgments that are discontinuous with the judgments of the people in the organization (Michaels, Goucher and McCarthy, 2006). This means that people conceives the situation - not as a decision-making problem for themselves - but as a decision-making problem for the organization (Colman, Pulford and Rose, 2008). Such that, people conceptualize the situation, or "frame" it, from the organization's point of view. In this sense, people perceive or experience reality as a meaningful and coherent whole, such that people's actions are based on the awareness of the complete situation. Also, people formulate and understand logical arguments based on sound propositions about organizational and environmental events, question the knowledge inherent in propositions, and focus at the right level or angle by choosing which facts are salient in a given situation for organizational

decision making or problem solving (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009).

2.3.2. Intuitive Practice

The term of intuition is defined as a non-sequential information processing mode, which comprises both cognitive and affective elements and results in direct knowing without any use of conscious reasoning in the individual level of analysis (Epstein et al., 1996; Shapiro and Spence, 1997; Sinclair et al., 2002). Specifically, intuition is an unconscious information processing system, which produces a rapid (often labeled instantaneous), spontaneous (does not require effort and cannot be deliberately controlled), alogical (meaning that it does not necessarily contradict the rules of logic but does not follow them either), and holistic judgment based on complex patterns of temporal and conceptual relationships (Allinson and Hayes, 1996).

In the management literature, the term of intuition is generally conceptualized as “judgement” of managers or leaders. For instance, Dane and Pratt (2007, p. 40) wrote that “intuitions are affectively charged judgments that arise through rapid, nonconscious, and holistic associations.” It is a non-conscious process where information is accessed and organized holistically (Khatri and Ng, 2000). This way, it enables managers/leaders to understand or portray a whole frame; that is, something that neither exists nor was clearly outlined earlier (Sinclair and Ashkanasy, 2005), and to synthesize “unconnected memory fragments into a new information structure” (Mintzberg, Ahlstrand and Lampel, 1998, p. 164). These intuitions of managers/leader can be viewed as “quick appraisal[s] based on integrating information in a sketchy way” (Segalowitz, 2007: 144). For example, Weick (1995) described the process of intuiting as the preconscious recognition of the pattern and/or possibilities inherent in a personal stream of experience. Simon (1987) usually explained intuition as experts recognizing patterns relevant to their experience.

We focus on the “collective intuition” in the organizational wisdom perspective. We argue that, based on the work Eisenhardt (1999), Sinclair and Ashkanasy (2005), Bradley, (2007), and Hodgkinson et al. (2009) intuitive practice is a collective concept composed of cognitive (i.e., experience-based phenomenon that draws on tacit knowledge accumulated

through experience and retrieved through pattern recognition) and affective and sensory elements. Specifically, the collective intuition is an experience-based phenomenon that draws on tacit knowledge and emotions accumulated through experience (Erden, von Krogh, and Nonaka, 2008) and retrieved through pattern recognition (e.g. Lange and Houran, 2010; Klein, 1998; Simon, 1987) to make judgements and decisions without deliberation. Such that, the knowledge and skills on which such judgments are based are acquired through explicit and implicit learning processes through extensive experience, often accompanied by intense, focused, and deliberate practice, in a specific domain (Kaufmann, Meschnig and Reimann, 2014; Dreyfus & Dreyfus, 1986; Klein, 2003; Polanyi, 1966; Reber, 1993). Collective intuition is also related to the sensitivity to relevant cues and the making of connections and associations with an empathic sensitivity to what people are feeling (e.g. Hensman and Sadler-Smith, 2011; Epstein, 1998; Parikh et al., 1994). As such it involves sensing rather than thinking and frequently accompanied by emotion (Shapiro and Spence, 1997, Bradley, 2007). Accordingly, in the intuitive aspect of wisdom, we propose that people use non-rational and subjective elements when making decisions, acknowledge the sensory and visceral as important components of decision-making and judgment, and respect and draw upon tradition as a means of apprehending who and what they are as a form of personal insight enabling them to understand the contingencies and the constructedness of phenomena (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009).

2.3.3. Virtue Practice

The term of “virtue” refers to moral and intellectual excellences of human character and action in the pursuit of the highest good of human beings, the most ennobling behaviors, and the essence of humankind when at its best (Bright, Cameron, and Caza, 2006; Cameron and Winn, 2012). It is synonymous with the internalization of moral rules and judgment that produce social harmony in the philosophical context (Cameron and Caza, 2002; Bright et al., 2006).

At the organizational level of analysis, the researchers argued the concept of organizational virtuousness, which stems from the positive organizational scholarship literature. Organizational virtuousness “represents a capacity, an attribute, and a reserve in

organizations that lead to the demonstration of positively deviant behavior” (Cameron & Caza, 2002, p. 35). Positive deviance moves an organization from focusing solely on profit, efficiency, and reliable performance to extraordinary, flawless, generous, and benevolent behaviors that benefit all stakeholders and the entire community (Cameron and Lavine, 2006). In a sense, organizational virtuousness examine how organizations become exceptional and virtuous rather than the emphasis on the deficiencies of organizations (Cameron and Caza, 2002). Also, according to the writers, organizational virtuousness consists of three key indicators: 1) moral goodness (i.e., what is good, right, and worthy of cultivation and ethical principles, which can be interpreted as an attempt to operationalize what is right or just (Morse, 1999), 2) human impact (i.e., helping individuals flourish, exhibit moral character, self-control, resilience, and purpose, and follow transcendental principles what one does just because one sees those actions as noble and worthwhile) (Hughes, 2001, p. 89), and 3) social betterment (i.e., actions that benefit society in a positive manner; producing benefit to others regardless of reciprocity or reward) (Cameron et al., 2004).

Organization virtueness studies were also explained in terms of exchange and justice theories, which are parallel to the organizational wisdom context due to its philosophical roots (Cugueró-Escofet, and Fortin, 2014). In this perspective, organizations behave responsibly and engage in prosocial behavior because of justice concerns, reciprocation, or exchange (Batson, et al, 1995; George, 1991). Based on the this theory, we argue that collective virtue in the organizational wisdom context is a collective ethical disposition which habitually motivates, guides, and corrects moral behaviors and sustain the people’s integrity in the organization. Collective virtue practice is less concerned with “moral mandate” or “ethical compliance” (Sadler-Smith, 2013), rather it enables ethical self-organization and moral self-regulation of people. Collective virtue practice is also related to the positively deviant pro-organizational behaviors which, reduce formalized, difficult-to-define, and difficult-to-enforce organizational codes of conduct of people that are concerned with preventing ethical breaches and reinforcing minimal-achievable norms (Weaver, 2006). Accordingly, with virtue aspect of wisdom, people value humane and virtuous outcomes, produce virtuous and tolerant decisions, and have ethical judgments about events (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009).

2.3.4. Prudence Practice

The term of prudence, or phronesis, is a reasoned and true state of capacity to act with regard to human goods. It is generally understood as the ability to determine and undertake the best action in a specific situation to serve the common good. Fowers (2003, p. 415) for instance, defined the prudences as “the capacity to recognize the essentials of what we encounter and to respond well and fittingly to those circumstances.” Mele (2010) noted that while virtue ensures the rightness of the end people aim at, prudence view ensures the rightness of the means people adopt to gain that end. MacIntyre, (1966, p. 74) mentioned that prudence involves “knowing how to apply general principles in particular situations. . . . It is the ability to act so that principle will take a concrete form.” (c.f., Birmingham, 2004).

At the organizational level of studies, prudence, which also named as entrepreneurial knowledge (Zackariasson, Styhre and Wilson, 2006) or evaluative knowledge (or know-whether)—knowledge related to choices about what is appropriate in a given situation (i.e., whether this, or that), illustrates the practically or value-added quality of wisdom and is the right reason in action (McKenna, Rooney and Boal, 2009). Specifically, prudence is the right conduct in each specific situation, and is an optimal practice of dealing with organizational and environmental challenges (Yuengert, 2011; Oliver, Statler and Roos, 2010). Prudence is also event-sense, and is the principle of self-reflection. Here, prudence is the high-quality tacit knowledge acquired from practical experience that enables people to make prudent decisions and take action appropriate to each situation. For example Nonaka and Tayama (2007) mentioned that a product, in this case a car, incorporates the values held by its makers at the time it is made. Simply put, if technic is the knowledge of how to make a car well, practical wisdom is the knowledge of what a good car is (value judgment), and how to endeavor to build such a car (realize the value judgment). A company cannot survive on technic alone, because no matter how well a company can make a car, if it’s not a “good” car, it is meaningless. Technical knowledge cannot answer the question of what a good car is either, since “good” is a subjective value whose definition depends on the person using the car. This value cannot be a universal truth since it depends on the context, or who perceives that goodness, and the answer continuously changes. In short, practical wisdom is the ability to understand and bring to fruition that which is considered good by individual customers in specific times and situations. This way, through prudence aspect of wisdom, people have rich

factual or declarative knowledge about their specialization in the organization, and are practical and oriented towards everyday life actions (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009).

2.3.5. Aesthetic Practice

The term of aesthetics is defined as the set of principles concerned with the nature and appreciation of “beauty” in the literature. Especially, aesthetics deals with the forms of understanding, perception, conception, and experience which individuals qualify (often after the fact) with adjectives such as “beautiful,” “ugly,” “elegant,” or “repulsive.” in the Philosophical context. Also, aesthetics indicates the sensory knowledge and felt meaning of objects and experiences and involves sensory assessments of how individuals feel about anything (Gagliardi, 1996).

At the organizational level of analyses, aesthetics attends to ‘aesthetic judgments’ or ‘categories’ such as: the beautiful, ugly, comic, tragic, sympathetic, symbolic, sacred, sublime, picturesque and mysterious aspects of organizational life (Strati, 1992, 1999). For example, classical management perspective influenced by Taylorization and Scientific Management presented an aesthetic which equates beauty with efficiency. This aesthetic dominates organizational thinking, and is represented in statements like “it’s working beautifully” (White, 1996), which means that it is working smoothly, efficiently, exactly as planned -- the realization of the modernist management ideals. In his study, Ramirez (1991) conceptualized the beauty in organizations as being based in the experience of connections. According to the Ramirez (1991), in any organization, people are both separate from others and part of something bigger than themselves. It is the experience of being connected to others, the experience of being part of something bigger than themselves that they name as beautiful. Adler (2011) offered a conceptually similar approach to “beauty” in organizations. She argued the importance of beauty as an aspiration for leadership in organizations. She suggested that beautiful leadership means having the courage to see reality, the courage to see possibility, and the courage to inspire people to move from current reality to possibility.

The common theme at the organizational level of studies is that aesthetics relates to felt meaning generated from sensory perceptions, and involves subjective, tacit knowledge rooted

in feeling and emotion (Ramirez, 2005). Gagliardi (1990), for example, noted that sensory and aesthetic elements of organizational experience are sometimes referred to as the *pathos* and make up the aesthetic dimension. Here, aesthetic is skewed toward knowledge drawn from more aesthetic experiences or knowledge used to construct, represent, and interpret the felt meanings and sensory experiences related to organizational activities (Dean, Ottensmeyer, & Ramirez, 1997; Gagliardi, 1996; Ramírez, 2005; Strati, 2010; Taylor & Hansen, 2005).

Given that aesthetics has directed people's conceptualization of organizing, Strati (1999) suggested alternative aesthetics can help redefine what organization is, and new criteria, besides efficiency, by which organizations might be judged. Indeed, some researchers avoided relegating aesthetics to being only about the concept of "beauty". According to these researchers when people do associate aesthetics with art, it is probably because art communicates in paralogical ways, giving meaning through expressions other than the logical, such as emotional. According to the this researchers, Art has an aesthetic, but so do places and interactions, such as an office and how a factory is laid out, or a job interview. A conversation with people's boss might leave them with a bad taste in their feeling inspired in ways that go beyond any content of the conversation. People often think of aesthetics as referring to beautiful things, as when they find something aesthetically pleasing. Aesthetics do involve judgment, but beauty is only one of several aesthetic categories.

As a result, we conceptualize the organizational members' aesthetic experience as being based in the aesthetic interaction, which we base upon Berleant's idea of the aesthetic transaction (Fine, 1984, cf. Taylor 2002) and communication (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009). In applying aesthetics to organizational studies, Gagliardi (1996, p. 566), for example, also described aesthetic capacity as a form of knowledge (e.g., unconscious or tacit and ineffable knowledge that is not translatable into speech), expressive action (e.g., disinterested action shaped by impulse and by mode of feeling rather than by the object), and shared communication (e.g., a form of communication different from speech). Here, the aesthetic dimension of organizational wisdom highlights the role of smooth communications among people in the organization (Tsoukas 2005). Indeed, knowledge to be effectively used in an organization, the capacity to communicate complex and abstract ideas should be excellent.

Accordingly, aesthetic capacity in the organizational wisdom context is an artfully constructed communicative action (a situated social practice), which draws on psychological and social processes that include sensory-emotional dynamics (Witz, Warhurst and Dennis, 2003). In this way, through aesthetic capacity aspect of wisdom, people have sensitivity and

ability to interact with others and continually pick up clues and meaning from these interactions; are able to relate to other people in some way so that they can better apprehend a person's often unarticulated beliefs, attitudes, values, knowledge, and understanding, as well as their capacities and incapacities (Rooney and McKenna, 2007, 2008; McKenna, Rooney and Boal, 2009).

3. HYPOTHESIS DEVELOPMENT

3.1. Organizational Wisdom and Firm Innovativeness

In this section, we discuss how organizational wisdom affects the firm innovativeness. However, as mentioned before, since wisdom practices illustrate the organizational wisdom concept, it will be more appropriate to argue how each of the wisdom practice influences the firm innovativeness rather than discuss one composite variable of organizational wisdom to capture more insights. Indeed, complex issues, like innovation, are best addressed from multiple approaches' perspectives. In this sense, organizational wisdom can be fruitfully explored in all five practices. Each approach adds a different facet, broadening our understanding of the mechanisms and processes involved in the product and process innovation efforts.

In this vein, we argue that collective reasoning practice influences the firm innovativeness by improving the interactions among people during the product development and process implementation efforts. As the collective reasoning raises the awareness of “we” phenomenon, people work in harmony among their diverse desires and values, cooperate to generate alternative solutions to the product/process related problems, and then evaluate them to operate effectively during the innovation efforts. In addition, people organize their interactions as instances of standardized types of social relationships, and produce conditions for responding to innovation related issues in predictable ways. In a sense, people's perception of “utility” replaces “duty”, and “being good” becomes “feeling good” during the interactions (Branson, 2007) – leveraging the innovativeness.

Collective reasoning practice also influences the firm innovativeness by leveraging sensemaking or meaning-making of events and actions of people during the product/process innovation efforts (Mumby, 2004). People filter and interpret the noise from within their own organizations and environments, determine the salient points (i.e. relevance and strength) of facts in a given technological and market situation, and uncover new information that is acted on by the collective reasoning (Malan and Kriger, 1998). In this way, people can find valuable

discoveries about innovation activities and understand how to develop and implement new products/process embedded in complex situations (Elfin, 2003).

Collective reasoning practice further guides the productive behaviors and actions of people toward better new product development and process implementation efforts. Brownlie and Spender (1995), for example, mentioned that reasoning provides a grand transcendental thought process to which people can aspire as a basis for their behaviors and actions. With collective reasoning, people are engaged to the achievement of given product and process related goals within the limits imposed by project and organizational conditions and environmental constraints (Rutgers, 1999). Therefore;

H1: Collective reasoning practice is positively related to the firm a) product and b) process innovativeness.

Collective intuition practice also influences the firm innovativeness by helping people to detect the changing patterns in the organization and environment with regard to product and process related progresses, issues and opportunities (Malan and Kriger, 1998). Parikh, Neubauer and Lank (1994), for example, noted that conventional, analytical logical patterns of the thinking are no longer sufficient to understand the emerging changes in the business environment. According to them, intuition provides an ability to cope with the accelerating change and conflict by solving ill-defined problems without existing precedents and realizing the limits of people's information processing capacity. As Christensen et al (2002, p. 30) pointed out: "We use the word intuition deliberately here. While the process that moulds ideas into sustaining innovations can be deliberate, data-driven and analytical, the process for shaping disruptive businesses must be driven by intuitive understanding of the possibilities" (cf. Cunha and Chia, 2007). Indeed, if a market does not yet exist, it cannot be analysed. It must be sensed intuitively through directly interacting with the possibilities incubating at the periphery. In addition, collective intuition allows people to see an integrated picture of the innovation efforts (Isenberg 1984; Novicevic, Hench and Wren, 2002). Here, people non-consciously scan the internal organizational memory and external environment resources in a non-logical, non-temporal manner in order to identify relevant pieces of information that are fitted into the solutions for product and process related issues. When they assemble the pieces of information, they construct the "big picture" of the product/process development processes (Brockman and Anthony, 1998; Mintzberg et al., 1998).

Collective intuition practice also affects the firm innovativeness by leveraging creativity/imagination_of people_(Korthagen, 2005). Jung (1988, p. 221), for example, argued that "*The primary function of intuition. . . is simply to transmit images, or perceptions of*

relations between things. . . These images have the value of specific insights which have a decisive influence on action whenever intuition is given priority.” Specifically, people reorganize the chunks of information into a new interrelated pattern to create new knowledge, all of which occurs without any conscious processing (Klein, 2004), and link the past, present and future of innovation efforts with their feelings, emotions and constructive fantasies, which allow them to imagine and foresight to develop new ideas and judge the path for pursuing the course of a research or project progress (Sadler-Smith, 2008; Crossan et al. 1999). Therefore:

H2: Collective intuition practice is positively related to the firm a) product and b) process innovativeness.

We next put forward that the collective virtue practice enhances firm innovativeness by allowing positive emotions, such as love, empathy, enthusiasm, throughout the organization (Fineman 1996; Fredrickson, 1998; Seligman, 2002). These positive emotions, as demonstrated by Staw and Barsade (1993), produce a higher level of helping behavior to others, broader and richer social relationships and harmony (prosocial behavior) for innovation efforts (Isen et al., 1987). Indeed, with virtue practice, people experience a compelling urge to join with and build upon the contributions of these others for better product and process development initiatives (Sethi and Nicholson, 2001), and are much more likely to face and overcome adversity – develop resilience. In addition, when people experience more positive emotions are more helpful to customers, for example, more creative, and more empathetic and respectful and positive service to and relationships with customers (Simon, 2013) -- enhancing new process process implementation efforts.

Virtue practice also improves the firm innovativeness by enhancing creativity of people. As exposure to virtuous behavior produces feelings of inspiration, awe, gratitude, people become more creative in their thinking (Isen, Daubman, & Nowicki, 1987), improve their information processing, and broaden their interest in and accessibility to new ideas and information (Isen, Daubman, and Nowicki, 1987). As a result, people conceptualize product/process related problems and interpersonal situations in more complex ways, resulting in the likelihood that they go beyond short-term self-interest to focus on the good of the collective benefit for the organization (Turner, Barling, Epitropaki, Butcher & Milner, 2002). Therefore;

H3: Virtue practice is positively related to the firm a) product and b) process innovativeness.

Prudence practice also influences the firm innovativeness by helping people to judge thoughtfully (e.g., not mechanically or peremptorily) and to act decisively about the product/process related issues and events (Kane and Patapan, 2006). For example, Kane and

Patapan (2006) noted that people should judge particular situations on their individual merits and have a capacity to act accordingly to deal effectively with the challenges. Indeed, particular situations that people face during the innovation projects are not just initial conditions. In essence, project related events change day-to-day and have to be dealt with by people when they plan, modify, and put their strategies into practice. In these situations, there is no time to do detailed analyses of the conditions for people. Here, through the prudence view of wisdom, people less consider the linear and causal relationship of means and ends, which has been the implicit assumption of conventional strategic analysis to leverage firm innovativeness (Mintzberg, 1994).

Prudence view of wisdom also allows people to improvise, which is the ability to react quickly and appropriately to an unpredictable situation, to improve firm product and process innovation efforts (Chia, 2004; Whittington, 2004). Indeed, Birmingham (2004, p. 321) note that prudence view or phronesis allows people to “learn how and when to trust certain feelings, and they develop habits of attitude and feeling that enable them to reliably make good judgments without being aware of following a procedure.” In this case, people use their sense of the details to “see” or “feel” the product/process or project related problems and issues as solvable within their local constraints, and they are able to develop successful plans to address identified problems (Halverson, 2004 Nonaka and Toyama (2007). Therefore;

H4: Prudence practice is positively related to the firm a) product, and b) process innovativeness.

We argue that aesthetic capacity practice affects the firm innovativeness by enhancing the communication of abstract thought and information during the innovation efforts (Tsoukas, 2005). Indeed, as knowledge work has become increasingly abstract in innovation processes (Tsoukas 2005), it is more difficult to communicate and understand. Here, aesthetic capacity practice allows people for imagination and tacitly-held beliefs to be expressed, and assist them to construct, represent, and interpret the felt meanings and sensory experiences (Hansen, Ropo and Sauer, 2007). Also, people create dialogue in order to facilitate divergent thinking that gets to deeper questions and explores the framing of problems, improve their collective mind in order to cope with complex innovation related issues, and improve their linguistic tools and make choices about the ways they position themselves in conversation during the product and process innovation efforts and processes.

Aesthetic capacity practice also improves the sensemaking capacity of people to enhance their innovativeness. Specifically, aesthetic capacity help people to become aware and go

beyond taken-for-granted meanings and develop a sense of new possibilities, particularly when old solutions are no longer effective (Kuepers, 2011) and see some other aspect of innovation related problems and solutions (White, 1996). Taylor and Hansen (2005, p. 1216) for example wrote that “aesthetic forms of expression are like experiments that allow us to reconsider and challenge dominant categories and classifications. . . Innovative forms resist existing classifications altogether, compelling the creation of new categories, allowing new things to belong in new places and making possible the juxtaposition of concepts that had been incommensurable.” White (1996) also noted that beauty is a heuristic lens that allows them to see something else. Therefore;

H5: Aesthetic capacity practice is positively related to the firm a) product and b) process innovativeness.

3.2. Organizational Wisdom and Firm Financial Performance

As a driver of firm innovativeness, organizational wisdom has also influence on the firm financial performance. For instance, with collective reasoning practice, people in the organization consider many alternatives in a flexible manner and develop strategic plans for future, and eventually, increase the firm’s financial performance. Also, collective intuition practice, including experience, judgment and gut-feelings, plays a significant role in financial performance. Eisenhardt (1989), and Judge and Miller (1991), for example, provided indirect evidence that intuitiveness has a positive effect on performance in 'high-velocity' environments. Khatri and Ng (2000) also found that intuitiveness is strongly positively associated with the financial performance of computer companies. With regard to virtuousness practice, studies of Bolino, Turnley, and Blodgood (2002) and by Nahapiet and Ghosgal (1988), showed that organizations with high social capital and high levels of employee engagement produce higher levels of profitability. Cameron and Caza (2004) also mentioned that virtuousness engender resources on which the organization can call to achieve its financial objectives. Regarding the aesthetic capacity practice, the researchers argued that knowledge gained through impressions pertaining to the senses, empathic and artistic understanding is used as a criterion for firm financial performance (Strati, 1996). Finally, with prudence aspect of organizational wisdom. Nonaka et al., (2000) mentioned that prudence

view constitute a critical element of the organizational knowledge asset that is firm-specific [and] indispensable to create value for the firm, which enhance the firm financial performance.

At the same time, the literature explains that firms derive competitive advantages and improve their financial performance by channeling resources into the development of new products and processes (Calantone, Cavusgil and Zhao, 2002; Hult et al., 2004). Specifically, the literature indicated that a distinctive competence, which is a firm's ability to do something better than can its competitors, is a source of above-normal profits when it enables a firm to offer unique (and valued) products or services (Bowen, Rostami, Steel, 2010). Damanpour (1991), for example, asserted that innovativeness is a bridge between a firm's resources and its ability to improve performance. In this respect, we argue that organizational wisdom principles influences firm financial performance via firm innovativeness. The rationale is that while organizational wisdom principles are necessary and sufficient preconditions of product development and process implementation, firm innovativeness gives the firm the necessary order and the continuity of those wisdom practices in a reflexive manner to leverage financial performance. Such that, innovativeness links the wisdom practices and financial performance by reflecting the continuous re-creation of wisdom practices. For instance, when people effectively use collective reasoning and intuition during the product development activities and issues, they re-created and revise those reasoning and intuition practices during the product innovation process, which eventually elevate firm financial performance by launching better and faster new products.

In addition, firm innovativeness mediates the relationship between wisdom practices and financial performance by providing a forum that encourages people to redefine themselves and their actions/behaviors. For instance, during the product and process development efforts, people assign meaning to their own and others' activities, and their collective reasoning, prudence, virtue etc. to orchestrate their local actions to produce better results, which eventually increase financial performance. Therefore;

H6: Firm innovativeness mediates the relationship between organizational wisdom practices and firm financial performance.

3.3. Organizational Wisdom, Environmental Uncertainty and Firm Innovativeness

We argue that environmental uncertainty is positively related to the usage of organizational wisdom practices. For example, at the individual level of analysis, the recognition and management of uncertainty is at the heart of Kitchener and Brenner's conception of wisdom (Kitchener & Brenner, 1990) and Berlin Wisdom Paradigm (Baltes & Staudinger, 2000). The studies argued that a wise individual recognizes that the world is uncertain, and has learned how to manage this uncertainty effectively.

In a similar fashion, there are also some theoretical evidences on the relationship between environmental uncertainty and organizational wisdom. For instance, Brown and Starkey (2000) conceptualized organizational wisdom as a composite of curiosity, a willingness to learn, and an openness to learn new things about a firm's environment that challenges its assumptions and knowledge. Weick (1998) argued that wisdom is an attitude that avoids extreme caution and extreme confidence to improve adaptability and performance in decision making by embracing curiosity and openness. Indeed, as environmental uncertainty i-) creates administrative challenges for the firm, such that administrative tasks become more complex and non-routine (Miller and Dröge, 1986), ii-) promotes inconsistent and ill-defined preferences throughout the organization, such that decision-makers do not have information about environmental factors, which increases the risk of failure for organizational actions, and iii-) reduces firms' ability to identify cause-effect relationships, firms select particular organizational practices and structures, such as organizational wisdom (Miller, 1987).

More specifically, environmental uncertainty influences the use of collective reasoning practice in the organizations. With collective reasoning practice, people create common frame of reference within which information can be organized for coping with uncertainty, and know what signals to look for, against the noisy background of the business environment (Yearwood and Stranieri, 2009). In addition, people develop a sensing capability when and how to act or to withhold on the basis of whether or not environmental cues feel right. Here, if people do not find a match between the current situation and a past state, then they seek for more information to fully develop an understanding of the situation based on cues in the environment (Miller, 2003).

Environmental uncertainty also impacts the use of intuition practice in the organizations. The literature argued that using intuition is especially important in loosely structured situations (Klein, 2004; Sadler-Smith and Sparrow, 2008), in which goals are ill defined, in which the task is a judgmental one, and in which time pressure may impose constraints on rational analysis (Salas, Rosen, and DiazGranados, 2009). Especially, in times of change, intuitive practice enables people to size up a situation, integrate and synthesize large amounts of data, and deal with incomplete information (Eisenhardt, 1989; Dutta and Crossan, 2005; Sayegh, Anthony and Perrewé, 2004). For example, Agor (1990) has identified several conditions under which the use of intuition is appropriate: (a) there is a high level of uncertainty in the environment; (b) there is little previous precedent for action in the face of new emerging trends; (c) there are limited or no 'facts'; and (d) there are several plausible alternative solutions to choose from with good factual support for each option.

Environmental uncertainty next influences the use of aesthetic capacity usage. For example, Rooney and McKenna (2008) noted that aesthetic dimension of wisdom aims to communicate and share ideas about ambiguities and uncertainties, and about serious or important social issues, to create well-being. Schein (2005) also argued that when there is uncertainty and surprises in the environment, people need to trust their own artistic impulse and communication in deciding what kind of intervention to make and determine a “correct” course of action.

Environmental uncertainty further impacts the use of virtue practice in organizations. Writers argued that moral values like justice or fairness represent only one way to view difficult and uncertain situations (Colby et al., 1983; Rest, 1983). Sadler-Smith (2013) also noted that collective ethical disposition that habitually motivates, guides, and corrects moral behavior in organizational behavior is especially critical to cope with uncertain and changing environmental issues.

Environmental uncertainty finally affects the use of prudence aspect of wisdom in the organizations. Writers, for instance, noted that prudence is required in the conditions of uncertainty where there is no example to follow or where opinions vary on the proper course of action (Walker, 1992; Kirkeby, 2009). Nonaka and Toyama (2007, p. 382) also note that “A keen sensitivity to daily changes, and the ability to see the implications of those changes in the bigger picture are essential attributes of phronesis.” Here practical decisions and actions take into account long-term consequences and multiple perspectives to deal with uncertainties. Therefore;

H7: Environmental uncertainty is positively related to the wisdom practices usage in the organizations.

4. RESEARCH DESIGN

4.1. Measures

In the testing of the above hypotheses, multi-item scales adopted or developed from prior studies were used for the measurement of the constructs. Most of our research variables were measured using 5-point Likert scales ranging from “strongly disagree” (1) to “strongly agree” (5). Firm size and age questions, as control variables, were assessed by ratio scale. Firm size was indicated by the logarithm of the number of employees, and firm age was assessed by the logarithm of the number of years since the firm’s foundation. Appendix contains the questionnaire. Specifically:

For organizational wisdom variables, namely collective reasoning, institution and virtue, prudence, and aesthetic capacity practices, we developed new question items based on the theoretical arguments of Rooney and McKenna (2007, 2008), McKenna, Rooney and Boal (2009). While those authors discussed these variables from the philosophical and leadership perspective, we applied their arguments using an organizational view and then created question items based on the variables’ features.

The firm product and process innovativeness was assessed by asking five and four existing question items respectively adapted from Wang and Ahmed (2004) including to what extent a firm is first-to-market by new product and service introductions, firm’s new products and services are often perceived as very novel by customers, new products and services of firm put it up against its competitors, and a firm improves its business or operational processes, changes its production methods at a great speed in comparison with its competitors, and investments in new methods of production and manufacturing.

To measure firm financial performance, four questions were adopted from Ellinger et al. (2002) and York and Mire (2004). Since a multi-company and multi-industry sample was used (selection of a diverse set of industries improves the generalizability of the research findings to a broader population), performance differences concerning the nature of firms were controlled by using relative performance measures. Firm performance was assessed

relative to the achievement of organizational goals related to profitability and growth in sales and market share.

We should also note that although it is not the focus of our study, some variables were included as controls because they were shown to affect key variables in our study. For instance, previous researches suggest that firm size and age can have significant influence on firm product innovativeness (e.g., Weiner and Mahoney, 1981). Firm size was indicated by the logarithm for the number of employees, and firm age was assessed by the logarithm for the number of years since the firm was founded.

After developing the new question items in English, following the procedure of Usunier (2011), we formed a committee of bilingual translators, involving five translators (three in Turkish and two in English) expert in the research domain to avoid the etic and emic problems in translations. First, native English speakers from US-based universities, who have industrial experiences of more than ten years, evaluated the content and meaningfulness of these items to establish face validity. The committee also pre-tested the question items with small samples (e.g. about five MBA and Ph.D students) in the USA. They did not note any difficulty in understanding the items or scales. The question items were then translated into Turkish by two bilingual researchers. During the translation process, we discussed and “calibrated” our views and interpretations of the measurement items to generate a common conceptual basis. Here, we focused on the semantic/cultural rather than lexical/mechanical approaches to translation, and assessed the degree of conceptual convergence across languages rather than forcing the source (English) meaning into the target (Turkish) context. After the Turkish translation of the question items, a third bilingual person retranslated into English. The three translators then jointly reconciled all differences. A draft questionnaire was developed and then evaluated and revised in discussions with academics from Turkey, having knowledge of organizational behavior and innovation, as expert judges. The suitability of the Turkish version of the questionnaires was then pre-tested by eight part-time graduate students who are full-time employees working in the industry. In addition, four senior managers, randomly selected from a diverse cross section of firms located in Istanbul, Turkey, evaluated the content and meaningfulness of the items. Respondents did not demonstrate any difficulty understanding the items or scales. After confirming the questionnaire items, the questionnaires were distributed and collected by the Turkish co-authors, applying the “personally administrated questionnaire” method.

4.2. Sampling

We followed the sampling procedure of Akgün, Keskin and Byrne (2009, pp. 115-116) and Akgün, Keskin and Byrne (2012, pp. 439-441) in this study. We used a stratified random sampling plan from the directory of Istanbul Chamber of Industry. The Istanbul district was chosen for the purposes of this study because this district is the center of the Turkish economy for manufacturing and service sectors, and the primary location for foreign investors operating in finance, producer services, retail and wholesale trade, manufacturing and transportation sectors. A list of 500 eligible firms, characterized by: frequent product/service innovation; exploitation of new technologies in production/service; moderate to high level of technical and scientific expertise necessary for operations; shorter product/service life-cycles; high value market solutions; and, R&D being a key driver of growth, were generated from the lists. These firms also 1) develop new products and export them to other countries, such as the UK, Germany, Arab countries, Central Asia, and Russia, 2) are organized and managed based on the Western management style, e.g., they operate in accordance with ISO and European quality standards, 3) are affiliated with Western firms, and 4) have at least 30 employees and are in business since five years or more.

During the data collection, first, we contacted the firms' General Managers by telephone and explained them the aim of the study. Of the 295 firms contacted, 276 agreed to participate in our survey study. By using the procedure of Kumar, Stern and Anderson (1993), we asked at least to two respondents from each firm, who are the most knowledgeable employees/key informants about the organization's operations, culture and employees, to fill out our surveys in order to reduce the single source bias. Here, we expect that those informants are likely to assess the social interaction, relations among people, organizational knowledge, past experiences and innovativeness more accurately. Also, we asked for informants from top-level positions in their respective areas (e.g., department managers, senior staff etc.) and who are from different functions of the organization. Those respondents are expected to serve as "key informants" for others who work in the same organization due to their "bird's-eye view" of the organization (Kumar, Stern and Anderson, 1993). Further, we asked for respondents who are working within the firm for an average of over 5 years and have at least college degree to understand our survey question items.

After qualifying the respondents, we informed each that his/her responses would remain anonymous and would not be linked to them individually, to their companies, or products. This was done to assure anonymity, thus increasing the motivation of informants to cooperate without the fear of potential reprisals. In addition, we assured respondents that there were no right and wrong answers and that they should answer questions as honestly and forthrightly as possible. Furthermore, we developed a cover story to make it appear that the measurement of the predictor variable was not connected with or related to the measures of the criterion variable. These procedures reduced people's evaluation apprehension and made them less likely to edit their responses in order to be more socially desirable, lenient, and consistent with how they think the researchers wanted them to respond (Podsakoff et al., 2003).

Of the 276 firms that agreed to participate, 254 completed our questionnaires. However, 27 firms responded with only one survey, resulting in 227 firms. Since we employed a cross-sectional research design and asked questions on both independent and dependent variables in the same survey, to control the internal validity, we asked the same questions on different pages of the survey. For instance, we asked "We are faster in responding to the customer needs than our competitors" question two times in our survey. If the responses to these questions were not close to each other (our decision rule was ± 1), we deleted that survey from our analysis. As a result of data screening, 25 out of 227 surveys were discarded. Thus, our analyzable sample consisted of 202 firms. We compared the mean of variables, firm size, and ages of the eliminated surveys with the rest of the surveys used for the analysis, and found no statistical difference among them.

In our sample, the respondents were senior employees/staff (27%), technical leaders (27%), functional/department managers (16%), senior engineers (13%), product/project managers (12%), owners of the firm (2%), and general managers (3%). The included functions were; engineering/design (39%), marketing (20%), finance/accounting (15%), manufacturing (11%), human resources (8%) and others, such as sales, quality (7%). Finally, involved industries were: machinery and manufacturing (20%), telecommunication (10%), finance (11%), service (10%), chemical (8%), healthcare (8%), materials (7%), automotive (6%), information technologies (6%), electronics (5%), and others (9%) such as, food construction, petroleum and pharmaceutical.

5. ANALYSIS AND RESULTS

5.1. Measure Validity and Reliability

After data collection, we assessed our measures' reliability, unidimensionality, discriminant validity, and convergent validity (Anderson and Gerbing, 1988; Fornell and Larcker, 1981; Akgün, Keskin and Byrne, 2009, 2012). Since our organization wisdom construct is a new measure, we, first, conducted an Exploratory Factor Analysis (EFA) with 28 measured items of five variables of the organizational wisdom, using a principle component with a varimax rotation and an eigenvalue of 1 as the cutoff point, as shown in Table 5.1.

After performing the exploratory factor analysis, we conducted a subsequent Confirmatory Factor Analysis (CFA) using AMOS to assess the resulting scales of organizational wisdom. After elimination of the problematic items that had a low factor loading or a cross-load to the other variables in a step-by-step procedure, as demonstrated in Table 5.2, the results indicated that the models adequately fit the data. Also, fit indexes were $\chi^2_{(220)} = 860.18$, CFI=.90, and RMSEA=.08.

Furthermore, we performed a series of two-factor model tests (Bagozzi, Yi, and Phillips, 1999). In total, we evaluated 10 models using AMOS 4.0. We found that the chi-squared changes ($\Delta\chi^2$) in each model, constrained and unconstrained, were significant, $\Delta\chi^2 > 3.84$, suggesting that organizational wisdom variables demonstrate discriminant validity.

Besides the organizational wisdom variables, we also assessed the unidimensionality of performance variables (i.e., product and process innovativeness, and firm financial performance) in a CFA as recommended by Bentler and Cho (1988). After eliminating the problematic items, which have low factor loading or a cross-load to the other variables, in a step-by-step procedure, results indicated that the model fit adequately with $\chi^2_{(62)} = 312.86$, CFI= .94, and RMSEA= .09.

Table 5.1 Discriminant Validity of Construct Measures Factor Rotation

Variables	Items	F1	F2	F3	F4	F5
Reasoning practice	RP1	.71				
	RP2	.78				
	RP3	.68				
	RP4	.52				
	RP5	.68				
	RP6	.77				
	RP7	.75				
	RP8	.78				
Virtue practice	VP1		.81			
	VP2		.83			
	VP3		.79			
	VP4		.78			
	VP5		.64			
	VP6		.62			
	VP7		.70			
Prudence practice	PP1			.76		
	PP2			.59		
	PP3			.67		
	PP4			.66		
	PP5			.61		
Aesthetic capacity practice	ACP1				.69	
	ACP2				.72	
	ACP3				.65	
	ACP4				.75	
Intuition practice	IP1					.56
	IP2					.84
	IP3					.75
	IP4					.71
Eigenvalue		12.53	2.27	1.80	1.28	1.13
Percentage of variance explained		44.77	8.11	6.41	4.59	4.04

Table 5.2 CFA Result of Organizational Wisdom Variables

Variables	Survived items
Reasoning practice	RP1,RP2,RP5,RP6,RP7,RP8
Virtue practice	VP1,VP2,VP3,VP4,VP5
Prudence practice	PP1,PP2,PP3,PP4,PP5
Aesthetic capacity practice	ACP1,ACP2,ACP3,ACP4
Intuition practice	IP2,IP3,IP4
$\chi^2_{(220)}= 860.18$, CFI=.90, and RMSEA=.08	

Further, the measures were subjected to Confirmatory Factor Analysis (CFA) using AMOS. All factors, environmental uncertainty, organizational wisdom variables, product and process innovativeness, and financial performance, were included in one CFA model. During the CFA analysis, subscales or parcels (a method aggregating or taking the mean of several items that purportedly measure the same construct as indicators of a latent variable) were used for the CFA instead of individual items as recommended by Schmit and Ryan (1993). These researchers noted that goodness-of-fit measures are affected when the number of items used to identify a small number of factors is relatively large. Consistent with this approach, two subscores or parcels for each scale were created, each consisting of a randomly divided subset of the items in the scale. The CFA produced a good fit with a comparative fit index (CFI) of 0.96 (also, $\chi^2_{(99)} = 292.37$, RMSEA = .07).

Table 5.3 reports the reliabilities of the multiple-items along with construct correlations and descriptive statistics for the scales. Table 5.3 shows that there are some moderate to high correlations among some of the variables. However, we should note that these scores were expected, because, *in practice*, for example, having ethical judgment, seeing others actions as noble and worthwhile, and producing virtuous and tolerant decisions (i.e., virtue practice) are highly related to how people are able to deliberate well concerning what is good and expedient for themselves, are practical and oriented towards everyday life of work (i.e., practical wisdom practice). Table 5.3 also demonstrates that all the reliability estimates – including coefficient alphas, average variance extracted (AVE) for each construct, and AMOS based composite reliabilities – are well beyond or close to the threshold levels suggested by Fornell and Larcker (1981). As a check for discriminant validity, as suggested by Fornell and Larcker (1981), the square root of AVE for each construct is greater than the latent factor correlations between pairs of constructs (see, Table 5.3). After conducting these tests, we conclude that our measures have adequate discriminant and convergent validity. Further, the skewness ranged from -.72 to .38, and kurtosis ranged from -.68 to .49. These results indicate that the variables are well below the level requiring transformation of variables, skewness of 2 and kurtosis of 5 as indicated by Ghiselli Campbell, and Zedeck (1981).

5.2. Common Method Variance Assessment

We checked for potential common method bias with the Harman one-factor test (Podsakoff and Organ, 1986). The results of an unrotated principal component analysis with varimax rotation indicate that common method variance does not pose a serious problem in our investigation because several factors with eigenvalues greater than 1 were identified, explaining 70.41% of the total variance, and because no factor accounted for almost all the variance (i.e., highest single variance extracted was 35.69%).

Also, we compared the measurement model without the common method variance (CMV) factor and with it (Podsakoff et al., 2003). A comparison of the two models indicated that the change in fit indexes was not significant. After adding the common method factor, only small differences in the fit measures between the model without a common method factor ($\chi^2/df=3.21$; CFI=.87; RMSEA=.08) and the model with a common method factor ($\chi^2/df=3.01$; CFI=.89; RMSEA=.07) emerged. A comparison of the parameter estimates when common method variance was and was not controlled revealed that the path coefficients linking the constructs were not significantly affected (differences between the standardized regression estimates greater than .20 may indicate common method variance). Furthermore, we parceled out the smallest correlation of the remaining correlations to remove the effect of common method bias by following the Lindell and Whitney (2001) method. All unadjusted correlation coefficients remained statistically significant at $p < .05$ after adjusting for common method bias, even under the strictest conditions applied in our sensitivity analysis. Therefore, we are confident that the findings of our analysis are not attributable to common method bias.

Table 5.3 Correlations and Descriptive Statistics

Mean	S.dev.		Variables	1	2	3	4	5	6	7	8	9	10	11	
3.48	.98	1	Product innovativeness	(.85)											
3.31	.89	2	Process innovativeness	.74***	(.73)										
3.44	.89	3	Financial performance	.60***	.50***	(.81)									
3.44	.77	4	Reasoning practice	.40***	.53***	.30***	(.80)								
3.19	.79	5	Intuition practice	.36***	.34***	.31***	.40***	(.68)							
3.62	.91	6	Virtue practice	.37***	.43***	.15***	.59***	.33***	(.85)						
3.67	.82	7	Prudence practice	.40***	.42***	.28***	.62***	.36***	.71***	(.74)					
3.52	.83	8	Aesthetic capability practice	.42***	.50***	.28***	.61***	.29***	.64***	.61***	(.77)				
2.87	.97	9	Environmental uncertainty	.02	.04	-.03	.12*	.03	.18**	.15**	.07	(.73)			
2.52	.84	10	Firm size	.05	.13*	.13*	-.05	.01	-.06	-.03	-.03	-.07	--		
1.31	.43	11	Firm age	.02	.02	.22***	-.03	.19***	-.11	-.03	-.02	-.11	.29***	--	
				Composite reliability	.93	.82	.89	.90	.72	.93	.86	.85	.81	NA	NA
				Variance extracted	.73	.53	.66	.65	.46	.73	.56	.59	.54	NA	NA
				Cronbach's α	.93	.82	.88	.91	.72	.93	.86	.86	.79	NA	NA
				Inter-rater agr. (r_{wg})	.82	.73	.72	.76	.69	.80	.78	.82	.75	NA	NA

* $p < .1$, ** $p < .05$, *** $p < .01$

Diagonals show the square root of AVEs

5.3. Hypothesis Testing

Since our unit of analysis is the “*firm*,” we first aggregated the composite scores of nine variables, and the inter-rater agreement (r_{wg}) on firm level measures, which needs to be demonstrated. All r_{wg} values ranged from .69 to .82, well above the .60 benchmark (Hurley and Hult, 1998), indicating a satisfactory level of inter-rater agreement for each aggregate measure in a firm (see, Table 5.3).

In order to test our hypotheses, we performed a structural equation modeling (SEM) analysis. During the analysis, the parameters representing the covariances across organizational wisdom variables, and across product and process innovativeness variables were allowed to be free. As shown in Table 5.4, covariances among variables are significant. This means that organizational wisdom variables occur simultaneously and occurrence of one variable sets the stage for the others to occur. These results also explain the reason of the moderate to high correlations among some variables.

Table 5.4 Covariances among Variables

Path	Path Value
Reasoning practice ↔ Intuition practice	.26***
Reasoning practice ↔ Virtue practice	.41***
Reasoning practice ↔ Prudence practice	.36***
Reasoning practice ↔ Aesthetic capability practice	.39***
Intuition practice ↔ Virtue practice	.24***
Intuition practice ↔ Prudence practice	.23***
Intuition practice ↔ Aesthetic capability practice	.20***
Virtue practice ↔ Prudence practice	.47***
Virtue practice ↔ Aesthetic capability practice	.48***
Prudence practice ↔ Aesthetic capability practice	.37***
Product innovativeness ↔ Process innovativeness	.38***

* $p < .1$, ** $p < .05$, *** $p < .01$

The results of our H1-H5 and H7 were demonstrated in “Model 2” of Table 5.5. The results indicated that reasoning practice is positively associated with process innovativeness ($\beta = .29, p < .01$), partially supporting H1. Intuition practice is positively related to the both

product ($\beta = .21, p < .01$) and process ($\beta = .14, p < .01$) innovativeness, supporting H2. With regard to virtue practice, we found that it was not statistically associated with any innovativeness variable, not supporting H3. We found that prudence practice was not statistically related to any innovativeness variable, failing to support H4. Regarding the aesthetic capability practice, we found that it is positively related to product ($\beta = .22, p < .01$) and process ($\beta = .25, p < .01$) innovativeness, supporting H5. Finally, we found that environmental uncertainty is positively related to the virtue practice ($\beta = .18, p < .01$) and prudence practice ($\beta = .15, p < .05$), partially supporting H7.

For testing the mediating effect of firm product and process innovativeness between organizational wisdom practices and firm financial performance, H6, we employed the Baron and Kenny (1986) procedure, where: a variable (M) mediates the relationship between an independent variable (X) and a dependent variable (Y) if: a) X is significantly related to Y ; b) X is significantly related to M ; c) after X is controlled for, M remains significantly related to Y ; and d) after M is controlled for, the $X - Y$ relationship is zero. Steps b) and c) are the essential steps in establishing mediation and step d) is only necessary to prove a fully mediated effect. Also, the presence of the mediator (M) must reduce the impact of the independent variable on the outcome compared to when M is not present. Further, entering the mediator into the AMOS based SEM model should also result in a significant increase in R^2 . Thus, we performed three different SEM models as shown in Table 5.5:

- Model 1, including organizational wisdom practices and firm financial performance, indicates that intuition practice ($\beta = .21, p < .05$), prudence practice ($\beta = .18, p < .1$) and aesthetic capability practice ($\beta = .17, p < .1$) is positively related to firm financial performance, while virtue practice ($\beta = -.24, p < .01$) is negatively related to the firm financial performance, and $R^2_{\text{fin. per.}} = .17$;
- Model 2, covering organizational wisdom practices and firm product and process innovativeness variables, shows that reasoning, intuition, and aesthetic capability practices are positively related to the firm product/process innovativeness, except virtue and practical wisdom practices,
- After product and process innovativeness variables are controlled, as shown in Model 3, it is found that only virtue practice is negatively related to the firm financial performance ($\beta = -.26, p < .01$). Also it is found that product innovativeness ($\beta = .49, p < .01$) is positively related to the firm financial performance. Further, firm innovativeness variables slightly reduce the effects of organizational wisdom on the firm financial

performance, and inclusion of firm product and process innovativeness variables in the model increased the R^2 of financial performance variable, and $R^2_{\text{fin.perf.}} = .37$.

Based on the above results, it is seen that firm product innovativeness partially mediates the relationship between organizational wisdom practices and firm financial performance, partially supporting H6.

Table 5.5 Results of Hypotheses

Relationship	Model 1	Model 2	Model 3
Reasoning practice → Financial performance	.15		.06
Intuition practice → Financial performance	.21 ^{***}		.09
Virtue practice → Financial performance	-.24 ^{***}		-.26 ^{***}
Prudence practice → Financial performance	.18 [*]		.12
Aesthetic cap. practice → Financial performance	.17 [*]		.03
Env. uncertainty → Reasoning practice		.11	.11
Env. uncertainty → Intuition practice		.03	.03
Env. uncertainty → Virtue practice		.18 ^{***}	.18 ^{***}
Env. uncertainty → Prudence practice		.15 ^{**}	.15 ^{**}
Env. uncertainty → Aesthetic cap. practice		.07	.07
Reasoning practice → Product innovativeness		.10	.10
Reasoning practice → Process innovativeness		.29 ^{***}	.29 ^{***}
Intuition practice → Product innovativeness		.21 ^{***}	.21 ^{***}
Intuition practice → Process innovativeness		.14 ^{***}	.14 ^{***}
Virtue practice → Product innovativeness		.02	.02
Virtue practice → Process innovativeness		.07	.07
Prudence practice → Product innovativeness		.11	.11
Prudence practice → Process innovativeness		-.02	-.02
Aesthetic cap. practice → Product innovativeness		.22 ^{***}	.22 ^{***}
Aesthetic cap. practice → Process innovativeness		.25 ^{***}	.25 ^{***}
Product innovativeness → Financial performance		.51 ^{***}	.49 ^{***}
Process innovativeness → Financial performance		.12	.12
Firm size → Product innovativeness		.07	.07
Firm age → Product innovativeness		-.02	-.02
Firm size → Process innovativeness		.17 ^{***}	.17 ^{***}
Firm age → Process innovativeness		-.03	-.03
	<i>Full model</i>	$\chi^2_{(23)} = 57.42,$ CFI = .96, RMSEA = .09	$\chi^2_{(18)} = 45.62,$ CFI = .97, RMSEA = .08

Path coefficients are standardized. ^{*} $p < .1,$ ^{**} $p < .05,$ ^{***} $p < .01$

6. DISCUSSIONS AND IMPLICATIONS

6.1. Theoretical Discussions

This study, first, empirically demonstrated that organizational wisdom is important for the firm innovativeness. Specifically, this study showed that when people question the knowledge inherent in propositions about business, environment and organizational related issues and activities; use reason and careful observation about business, environment and organizational related issues and activities; and make careful observations to establish facts and logical deductive explanations about business, environment and organizational related issues and activities (i.e., reasoning practice), that firm changes its manufacturing and production methods effectively, and constantly improves its business or operational processes. (i.e., process innovativeness). This finding leveraged current understanding on the collective reasoning in the process innovativeness context (see, Koonce, Seybert and Smith, 2011). Such that, reasoning practice both diagnose and predict the organizational issues and events to enhance new process implementations and improvements. It appears that reasoning practice helps people to develop connections between presuppositions depending on systematic principles to solve production, manufacturing, customer related problems, and adopt a proactive response to the process improvements. Also, this finding showed that reasoning aspect of wisdom allows people to integrate their mind-sets, and bring value and judgment into productivity and learning to act in a constructive (e.g., exploitation) way to the best of their knowledge and existing information, which leverages the study of Matzler, Uzelac and Bauer (2014) in the process innovation context.

Interestingly we could not find a positive relationship between reasoning practice and product innovativeness. The reason is that collective reasoning practice requires explicit knowledge obtained through well-defined and standardized procedures (Tsoukas, 2005). It also makes the assumption that a complete description of the situation is available, and there is common knowledge among the people or departments. However, that reasoning may not in accordance with the everyday pragmatic problem-solving of product development processes as implicitly noted by Gudiksen (2015).

This study also showed that when people use insight, imagination, and foresight to reach a consensus on what the facts and the evidence are in organization; and acknowledge the sensory and visceral as important components of decision-making and judgment in the organization (i.e., intuition practice), that firm has more chance to develop and launch better and faster new products (i.e., product innovativeness) and implement new business models and continuously improve its production and manufacturing processes (i.e., process innovativeness). While past studies argued the group or team intuition on the product development performance (Brentani and Reid; Dayan and Albana, 2012) and process innovations (Owen and Huang, 2007; Erden, von Krogh, Nonaka, 2008), here this study investigated the intuition at the organizational level, and demonstrated its impact on knowledge usage for enhanced product and process innovativeness. It appears that intuitive aspect of organizational wisdom supports knowledge exploitation (i.e., providing sophisticated and complex mental maps and insights for people to improve the efficiency of their pattern perception and recognition about the organizational problems and events) and knowledge exploration (i.e., generating new insights, and focusing the future and organizational change) (Sundgren and Styhre, 2004). Also, this study demonstrated that both intuitive insights and intuitive judgements produce better new products and improves business and operations processes in the organizations, empirically leveraging the studies of Crossan et al. (1999). Specifically, this finding offered a richer picture of intuition by considering the intuitive judgement and intuitive insight together rather than distinguishing between intuitive judgement and intuitive insight, which is not contradictory.

Next, this study illustrated that when people articulate their insights to others, have communication skills, provide good judgment and advice about important but uncertain matters of organizational issues (i.e., aesthetic capability practice), that firm develops better and faster new products (i.e., product innovativeness), and improves its production, manufacturing, and business process (i.e., process innovativeness). This finding extends the previous studies. For example, while previous studies focused on the visual aesthetics or metaphor-exporting disciplines, such as product design and advertising, fashion, and interior design (Srinivasan, Lovejoy and Beach, 1997; Mowen, Fang, and Scott, 2010; Goode et al., 2013), this study highlighted the communicative and dialogic aspect of the aesthetic in the innovation context. The finding especially improves the Zhang, et al. (2014)'s argument at the organizational level that aesthetic capability provides an "*informal socialization strategy*" for the firm that enables open, active participation of people on the information sharing and communication. In addition, this study empirically leverages the implicit arguments of Erden,

von Krogh and Nonaka (2008) at the organizational level that aesthetic capability develops a cultural form – an artful projection of an organization’s values, and gives form to an organization’s distinctive skills. Indeed, how people feel about the organizational atmosphere, and what they find beautiful or see as unpleasant, all affect their feelings of belonging and contributions to collective action of the organization. This finding also enhanced the current understanding on the collective empathy and emotions in organizations (Akgün, Keskin and Byrne, 1999). While there is a common ground between the study of emotions in organizations and organization aesthetics, it seems that aesthetic capability practice relates to hidden subjective and tacit knowledge rooted in feelings and as such can easily escape critical attention (Taylor, 2002; Hansen, Ropo and Sauer, 2007). It appears that people work together in innovation projects according to the simple fact that they “feel right” Ramírez (2005), make sense of the environmental issues and organizational events by bringing into artfully communication and collective empathy and emotional understanding among themselves provides a very particular, ordered, and unique window on the innovation processes.

Further, this study showed that prudence aspect of wisdom is not statistically related to the firm product and process innovativeness. Past studies found the positive influence of prudence aspect of wisdom on the firm innovation efforts (Nonaka and Toyama, 2007). For instance, Zackariasson, Styhre and Wilson (2006), a study of video game development work, found that phronesis of the co-workers plays a central and decisive role and plays a very central role in creativity and innovation. However, it should be noted that past studies solely investigated the prudence aspect wisdom, independent from other organizational wisdom related variables. In this study, we studied the prudence practice in the nomological web of organizational wisdom construct. This means that prudence practice may influence the firm innovativeness via other significant wisdom practices due to the significant covariance among them as noted by the previous studies (McKenna, Rooney and Boal, 2009). Such that, prudence practice has potentially partial effects on the firm innovativeness when all other practices (e.g., reasoning, intuition and aesthetic capability) are controlled for. Here it seems that prudence practice is not directly related to particular thing or product, but to complete reasoning, intuition and aesthetic capability of an organization. In addition, this study demonstrated that there is no positive statistical association between virtue practice and firm’s product and process innovativeness. This result is contrast to the findings of Cameron, Bright and Caza (2004). However, it should be noted that while those authors assessed the organizational virtuousness as a multidimensional construct composed of organizational

forgiveness, trust, integrity, optimism and compassion¹, we assessed the virtue principle as the internalization of moral rules and judgement that produce social harmony (Baumeister and Exline, 1999). Also, virtue practice may influence the firm innovativeness by the way of other organizational wisdom variables (e.g., reasoning, intuition and aesthetic capability) due to the co-variant relations among themselves.

Second, this study empirically showed the role of environmental uncertainty on the organizational wisdom practices. Specifically, this study demonstrated that environmental uncertainty influences the prudence practice. Such that, when it is hard to know customers' needs, understand competitors' strategies, predict competitors' product announcement and is difficult to acquire technology, that firm employ the practical aspect of wisdom, which empirically support the claim of Bredillet, Tywoniak, Dwivedula (2015). Such that, under conditions of uncertainty, as the future is unknown, people cannot be guided by calculative rationality only; and the optimal course of action cannot be determined ex-ante, as they lack stable information and means of evaluation. In such contexts, a shift from the classical management perspective (such as, strategic planning) to the practice perspective is beneficial as this broadens understanding organizations' competence (Bredillet, Tywoniak, Dwivedula, 2015). Also, this finding improves the current understanding on the organization improvisation or reflection (Schön, 1992) in the innovation management and wisdom context. Specifically, due to the environmental uncertainty, as technology and market related knowledge is to some extent being ambiguous, that knowledge should be made visible and manifested in actions taken in the organization (Alvesson, 2001). Here, it appears prudence practice, which involves discussing and questioning the values and strategies enacted in a particular setting and takes into account local circumstances, proactively deals with any environmental changes in a reflective manner (Statler, Roos and Victor, 2007) by knowing-in-action, reflection-in-action, and conversation with the situation.

This study also showed that environmental uncertainty is related to the virtue aspect of organizational wisdom usages. When there exists uncertainty in the external environment, people concern the role of ethics and virtue of in the organizations, have ethical mindset and

¹ Cameron et al. (2004) developed and validated an instrument for measuring the perceptions of organizational virtuousness including five dimensions: optimism, forgiveness, trust, compassion, and integrity. Organizational optimism means that organizational members develop a belief that they will succeed in doing well and doing good, even when faced with major challenges. Organizational forgiveness refers to the degree to which mistakes are quickly forgiven and used as opportunities for learning in a context characterized by high standards of performance. Organizational trust means that courtesy, consideration, and respect govern the organization and that people trust each other and their leaders. Organizational compassion represents the degree to which people care about each other, and whether acts of compassion and concern are common. Organizational integrity means that honesty, trustworthiness, and honor pervade the organization.

judgment, and concern for others, being thoughtful and fair, admit their mistakes, and learning from them. This finding enhances the current understanding on the concept of “virtue frames” mentioned by Rhee et al. (2010), which is the means that people use to convey their understanding that something (a person, an action, a unit) has a quality of moral goodness in the organization. It appears people interpret environmental changes based partly on their interpretation of the kind and degree of virtuousness of actions in the organization. Here, virtue practice provides frames and sensemaking devices because people are socialized to detect and understand different forms information from the environments and they acquire a sense of whether that information is good or bad, empirically leveraging the arguments of Payne et al., (2013).

Based on the those interesting findings, such that the positive relationship between environmental uncertainty and prudence and virtue practice, and positive relationship between reasoning, intuitive and aesthetic capacity practices and firm product and process innovativeness as showed in Figure 6.1, we performed a post-hoc analysis. Reconsidering the the literature, we tested a modified model as showed in Figure 6.2 Indeed, there are some evidences that prudence and virtue aspect of wisdom has some impact on the reasoning, intuition and aesthetic aspect of the wisdom. For instance, when people have rich factual or declarative knowledge about their areas, are able to deliberate well concerning what is good and expedient for themselves, and engage in worldly activities, that firm has more reasoning, intuitive and aesthetic capability. Hursthouse (1999, p. 40), in this respect, mentioned that “a certain amount of virtue and corresponding moral or prudence (phronesis) might be required both to interpret the rules and to determine which rule was most appropriately to be applied in a particular case” (cf. Brenkert, 2009). Also, when people concern the role of ethics and virtue in the organization, that firm improves its reasoning, intuition and aesthetic capability. Harrison, Ashforth, and Corley (2009), for instance, noted that virtues are the normative fabric that binds individuals to create connections that are so deeply meaningful that they are seen as sacred. In addition, demarcating what is right and wrong, and what (and how) ideals should be pursued, virtuousness underpins the intuition of people. Table 6.1 demonstrated the results of modified model. It showed that environmental uncertainty is positively related to the virtue ($\beta = .18, p < .01$) and prudence ($\beta = .15, p < .01$) practices. Virtue practice is positively related to the reasoning ($\beta = .30, p < .01$) and aesthetic capability ($\beta = .43, p < .01$) practices. Prudence practice is positively related to the reasoning ($\beta = .41, p < .01$), intuition ($\beta = .27, p < .01$), and aesthetic capability ($\beta = .30, p < .01$) practices. Reasoning ($\beta = .15, p < .01$), intuition ($\beta = .22, p < .01$), and aesthetic capability ($\beta = .27, p < .01$) practices are related

to the product innovativeness. In addition, reasoning ($\beta = .30, p < .01$), intuition ($\beta = .15, p < .05$), and aesthetic capability ($\beta = .27, p < .01$) practices are related to the process innovativeness. Finally, product innovativeness is positively related to the firm financial performance ($\beta = .51, p < .01$). These findings empirically support the theoretical arguments of Nonaka and Toyama (2007), and Flyvbjerg (2004).

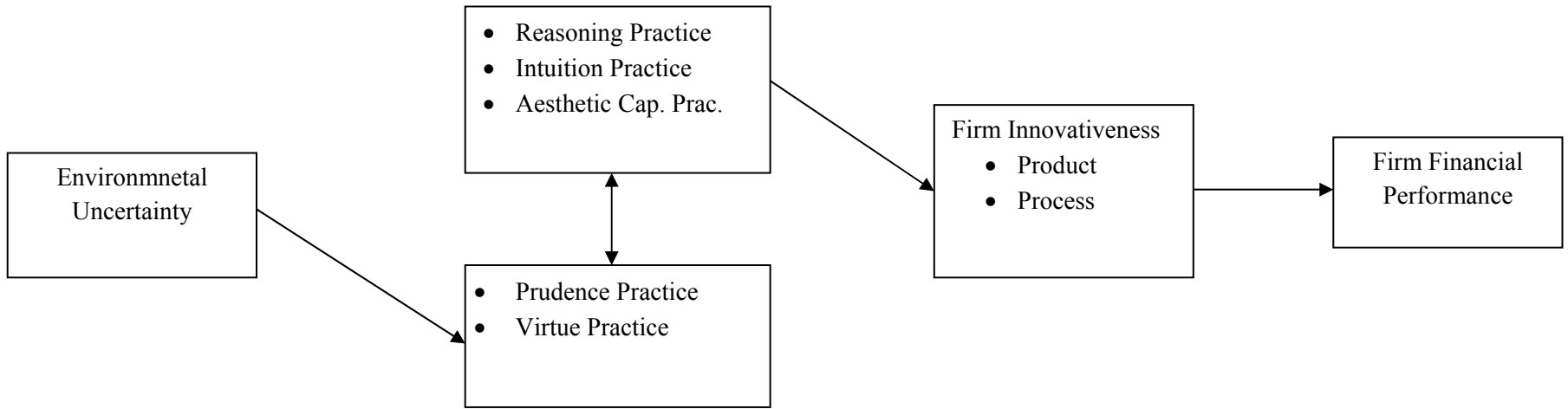


Figure 6.1 Actual Model

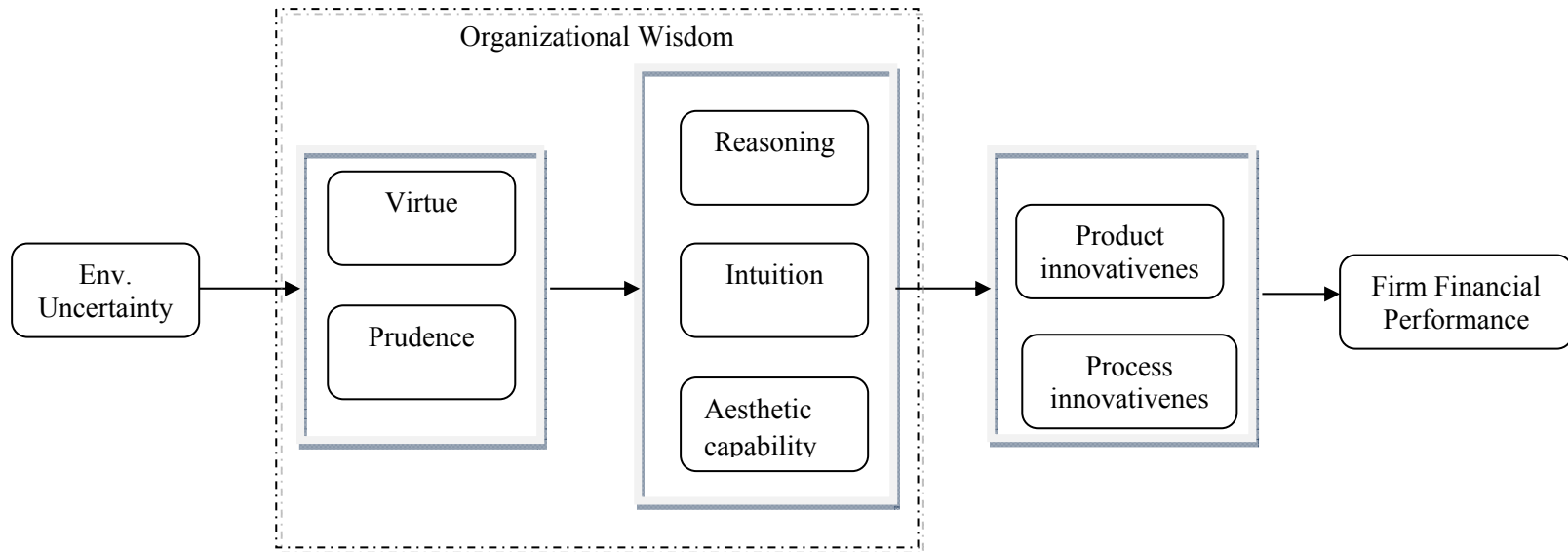


Figure 6.2 Modified Model

Table 6.1 Results of Modified Model

Relationship	Path Value
Env. uncertainty → Virtue practice	.18***
Env. uncertainty → Prudence practice	.15***
Virtue practice → Reasoning practice	.30***
Virtue practice → Intuition practice	.13
Virtue practice → Aesthetic cap. practice	.43***
Prudence practice → Reasoning practice	.41***
Prudence practice → Intuition practice	.27***
Prudence practice → Aesthetic cap. practice	.30***
Reasoning practice → Product innovativeness	.15*
Reasoning practice → Process innovativeness	.30***
Intuition practice → Product innovativeness	.22***
Intuition practice → Process innovativeness	.15**
Aesthetic cap. practice → Product innovativeness	.27***
Aesthetic cap. practice → Process innovativeness	.27***
Product innovativeness → Financial performance	.51***
Process innovativeness → Financial performance	.12
<i>Control variables</i>	
Firm size → Product innovativeness	.07
Firm age → Product innovativeness	-.03
Firm size → Process innovativeness	.17***
Firm age → Process innovativeness	-.04

$\chi^2_{(30)} = 62.52, CFI = .96, RMSEA = .07$

Path coefficients are standardized.

* $p < .1$, ** $p < .05$, *** $p < .01$

Third, this study offered a framework for researchers and managers to visualize and understand the relationship between firm-specific competencies and firm innovativeness, thus enhancing the movement of the Resource-based View (RBV) in the literature. Specifically, most of the writings on the resource-based view do not give a clear answer to the question of how a firm combines and utilizes its resources and how it decides what resources it will need in the future. Especially, the resource-based view of the firm explains, in hindsight, how resources determined why a firm adopted a certain strategy (and why it was successful or unsuccessful), but it cannot predict a firm's future strategy based on the resources it currently holds. Even two firms with exactly the same resources and operating in exactly the same environment will not necessarily choose the same strategy. In this respect, considering the

organizational wisdom provides a contribution to the RBV literature by presenting a model of interrelationships among the organizational wisdom practices and firm product and process innovativeness, and explains how firms find or create new opportunities, new markets, or new technologies to gain such above-average returns.

Also, this study improved the understanding on the organizational decision making process in the innovation management context. Specifically, the findings empirically supported the Shapiro and Spence's (1997) proposed framework that combines the roles of both analytic reasoning and intuition in decision making. For example, they suggested that structured problems are conducive to analytic reasoning due to the existing well-accepted decision rules. When the problems become more complex, people tend to put greater weight on the intuitive judgment relative to the analytic reasoning. From an organizational wisdom perspective, it appears that when people apply both rationalistic and intuitive decision making process, they solve organizational and innovation related problems more effectively. In addition, the findings extended the optimization view of the decision making concept, which emphasizes that decision making is a linear, step-by-step process toward maximizing outcomes (Yang, 2003) in the innovation context. For instance, people make consistent and value-maximizing choices among clear alternatives under specific constraints in the optimization view (Akgün et al., 2014). Organizational wisdom perspective highlights that people should be practical and make decisions in particular contexts of innovation efforts. Here, the emphasis is on when a decision is made to yield the satisfactory and sufficient result, people tend to be "satisfied" instead of optimizing the outcome (Yang, 2003). In a sense, people should choose an acceptable solution that is good enough for innovation efforts.

6.2. Managerial Implications

The implication of this study is that management should enhance firm's wisdom. In this respect, managers should enhance communication channels (e.g., intranet, web pages, mobile phones, IT tools, formal meetings etc.) and dialogue throughout the organization. Also, management should encourage face-to-face and informal communication (meeting after work hours, coffee breaks etc.) to exchange tacit knowledge and experiences of people. In addition, management should allow people to interact with each other via annual company-wide

meetings, celebrations, company-wide social clubs for understanding each other's unarticulated beliefs, attitudes, values, knowledge, and understanding, as well as their capacities and incapacities.

Management should also enhance the collective intuition practice of the firm. For this, management should set the "visions" for the organization, foster personnel training and development, encourage the diverse viewpoints, apply metaphors, mythological-symbolic language, simulations and organizational stories and common language, and enhance the imagination of people in the organization.

Next, management should cultivate the wisdom of people by paying special attention to the positive social atmosphere. Here, management should focus on the positive psychology, such as hope, collective empathy, resilience etc. in the organization. Management should allow expression and understanding of positive and negative emotions, give enough flexibility and autonomy to people, and help people become more aware of how they translate values into action, thereby making them more cognizant of their capacity to exemplify ethics or virtue, lessening the distance between espoused and enacted ethical behavior. Also, management communicate that employe development is important in the firm's priorities.

7. LIMITATIONS AND FUTURE RESEARCH

The study has some methodological limitations. Specifically, the cross-sectional nature of the research design does not enable us to study real causality between the different variables studied and to specify the changes in measures over time. For instance, reasoning, intuition, aesthetic capability, virtue, practical wisdom practices can be expected to change over time as new information/knowledge and experiences are acquired through direct interaction with customers, performance feedback, and other factors. In this respect, a longitudinal design can be used for future studies. A longitudinal design can shed light on feedback effects, as well as reverse and non-linear relations among the organizational wisdom variables, and product and process innovativeness. Also, using self-reported data may lead to a common method variance problem. Although our tests imply that the presence of common method variance is negligible in the current study, the issue may still exist. Future research may benefit from using objective measures of variables (e.g. number of new products developed and launched in the last five years, profitability, market share of new products) to leverage the validity and reliability of the study.

Next, we conducted this study in Turkish firms in general and in the Istanbul district in particular. In this regard, a Turkish sample and culture imposes constraints on the interpretation and application of the results. Different cultural contexts, countries, or geographic areas can be targeted to validate the results for a broader spectrum of cultures and geographies. Further, although the organizational wisdom variables (e.g., reasoning, intuition, aesthetic capability, virtue and prudence) have been defined as precisely as possible by drawing on relevant literature and theoretical underpinnings through a careful process of item generation and refinement, and then validated by academics and practitioners, they can realistically be thought of only as proxies for an underlying latent phenomenon that is itself not fully measurable. Finally, our selected sample and its size is another limitation of this study. To validate the results of the study and increase the sample size, future research can focus on a wider range of industries and types of firms (e.g., firms in mature industries, more local firms, small firms). For example, sampling of the study (e.g., firms with frequent or continuous product/service innovation) may result in overestimating the value of path coefficients between organizational wisdom practices and product/process innovativeness.

We believe that organizational wisdom presents opportunities for future researches in the literature. For instance, the antecedents of the organizational wisdom can be studied in great detail. Such that, how the leadership styles (e.g., transformative, interactions etc.), information technology usage, human resource management policies, and organizational memory, influence the organizational wisdom can be investigated. Also, the role of organizational wisdom on the firm absorptive capacity, organizational resilience, change and adaptive capacity, and organizational creativity and learning can be studied. Next, the role of collective or organizational spirituality (Zaidman and Goldstein-Gidoni, 2011) and emotional wisdom (Bagozzi, Belschak and Verbeke, 2010) on the organizational wisdom development can be empirically investigated.

Also, the concept of wisdom can be studied at the team level – team wisdom. How new product/software development teams develop their wisdom (i.e., what constitutes a team wisdom construct), the role of wisdom on the project performance (e.g., team learning and creativity, speed-to-market/users) and the moderating effect of team culture and climate, and project complexity on the relationship between team wisdom and project performance can be investigated. Also, the antecedents of team wisdom can be investigated by considering a variety of group/team dynamics and team/project processes. For example, researchers can study the antecedent variables, such as project team composition or the level of diversity in the team, team member proximity, media richness during the project, breadth of experience of the team members, cohesion in the team, types of interactions among team members, positive psychology variables (e.g., collective hope, gratitude, resilience etc.) etc.

In this study, we assessed the intuition practice as a one dimension construct. For future researchers, the assessment of collective intuition can be expanded. Even though proponents of experience-based intuition focus solely on the cognitive elements of the construct, intuition also includes an emotional or affective component (Sinclair, 2003). Also, the term of collective imagination, as a part of intuition, can be enhanced and operationalized by considering the descriptive, creative, and challenging imagination dimension (Gibbert, 2004).

Next, organizational aesthetic capability can be enhanced by the considering the different dimensions of that construct. In this study we highlighted the dialogical approach or communicating smoothly aspect of the aesthetic capability. Future studies can investigate the beauty of “collective actions” (i.e., artfully acting) (Taylor, (2013)., “behaviors” (i.e., artfully behaving), and “collective emotions” (i.e., artfully developing emotional capability). Further, in this study, we assessed the collective reasoning as one dimensional construct. Three aspects of collective reasoning, namely the publicity aspect (i.e., collective inferences and

decisions are carried out on the basis of mutual awareness of people's opinions and beliefs on the premises), the collective acceptance aspect (i.e., people collectively accept the others' opinions and beliefs as well as collective premises, and commit themselves to following them in their collective reasoning), and the historical constraint (i.e., how previous collective decisions constrain the people's future reasoning) aspect can be operationalized and empirically investigated (see, Miller, 2003).

8. CONCLUSION

In this study we addressed the relevance of organizational wisdom theory, which is dealt with at an abstract level and gets less empirical attention in the literature. We operationalized the organizational wisdom concept and its respective variables/practices and then tested the role of those practices on the firm product and process innovativeness, and financial performance. The results showed that there are significant associations among organizational wisdom practices, and firm product and process innovativeness. The results also demonstrated that environmental uncertainty triggers the some of the organizational wisdom practices, such as virtue and prudence. This research just scratches the surface of this important, but understudied, subject. Future researchers will find the area of organizational wisdom rich and fruitful for literature.

REFERENCES

- Adler, N. J. (2011). Leading Beautifully: The Creative Economy and Beyond. *Journal of Management Inquiry*, 20(3), 208-221.
- Agor, W., 1986. The Logic of Intuitive Decision Making: A Research-based Approach for Top Management, Quorum, New York.
- Akgün, A. E., Keskin, H., and Byrne, J. 2009. "Organizational emotional capability, product and process innovation, and firm performance: An empirical analysis." *Journal of Engineering and Technology Management*, 26(3): 103-130.
- Akgün, A. E., Keskin, H., and Byrne, J., 2012. "The Role of Organizational Emotional Memory on Declarative and Procedural Memory and Firm Innovativeness, *Journal of Product Innovation Management*." 29(3): 432-451.
- Akgün, A.E., Keskin, H., Byrne, J.C., 2014. Complex adaptive systems theory and firm product innovativeness. *Journal of Engineering and Technology Management*, 31, 21-42
- Allinson, C.W., Hayes, J., 1996. The Cognitive Style Index: a Measure of Intuition-Analysis for Organizational Research. *Journal of Management Studies* 33, 119-135.
- Alvesson, M., 2001. Knowledge work: Ambiguity, image and identity. *Human Relations* 54(7), 863-886.
- Amit, R., & Schoemaker, P.J., 1993. Strategic assets and organizational rent. *Strategic management journal* 14(1), 33-46.
- Anderson, J.C., Gerbing, D.W., 1988. Structural Equation Modeling In Practice: a Review and Recommended Two-step Approach. *Psychological Bulletin* 103, 411-423.
- Artz, K. W., Norman, P. M., Hatfield, D. E., & Cardinal, L. B. (2010). A Longitudinal Study of the Impact of R&D, Patents, and Product Innovation on Firm Performance. *Journal of Product Innovation Management*, 27(5), 725-740.
- Awad, E.M., & Ghaziri, H.M., 2004. Knowledge management. Pearson-Prentice Hall, Englewood Cliffs, NJ.
- Bacharach, M., 1999. Interactive team reasoning: A contribution to the theory of co-operation. *Research in economics* 53(2), 117-147.
- Bagozzi, R. P., Belschak, F., & Verbeke, W. (2010). The role of emotional wisdom in salespersons' relationships with colleagues and customers. *Psychology and Marketing*, 27(11), 1001-1031.
- Bagozzi, R., Yi, Y., Phillips, L.W., 1991. Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly* 36 (3), 421-458.

- Baltes, P.B., & Kunzmann, U., 2004. The two faces of wisdom: Wisdom as a general theory of knowledge and judgment about excellence in mind and virtue vs. Wisdom as everyday realization in people and products. *Human Development* 47(5), 290-299.
- Baltes, P.B., & Staudinger, U.M., 2000. Wisdom: A metaheuristic (pragmatic) to orchestrate mind and virtue toward excellence. *American psychologist* 55(1), 122-136.
- Barge, J.K., Little, M., 2002. Dialogical Wisdom, Communicative Practice, and Organizational Life. *Communication Research* 12 (4), 375-397.
- Barman, E., & MacIndoe, H., 2012. Institutional pressures and organizational capacity: The case of outcome measurement. *Sociological Forum* 27(1), 70-93.
- Baron, R., Kenny, D., 1986. The Moderator–Mediator Variable Distinction in Social Psychological Research. *Journal of Personality and Social Psychology* 51 (6), 173–1182.
- Bathurst, R., Jackson, B., & Statler, M. (2010). Leading aesthetically in uncertain times. *Leadership*, 6(3), 311-330.
- Batson, C.D., Klein, T.R., Highberger, L., & Shaw, L.L., 1995. Immorality from empathy-induced altruism: When compassion and justice conflict. *Journal of personality and social psychology* 68(6), 1042-1054.
- Baumeister, R.F., Exline, J.J., 1999. Virtue, Personality, and Social Relations: Self-Control as the Moral Muscle. *Journal of Personality* 67, pp. 1165-1194.
- Bentler, P.M., Cho, C.P., 1988. Practical Issues in Structural Modeling, in: J.S. Long (Ed.), *Common Problems/proper Solutions: Avoiding Error in Quantitative Research*. Sage Publications, Newbury Park, 161-192.
- Berleant, A., 1970. *The aesthetic field: A phenomenology of aesthetic experience*. Springfield, IL: Charles C. Thomas.
- Bierly, P., Kessler, E., Christensen, E., 2000. Organizational Learning, Knowledge and Wisdom. *Journal of Organizational Change Management* 13 (6), 595-618.
- Biloslavo, R., & McKenna, B., 2013. Evaluating the process of wisdom in wise political leaders using a developmental wisdom model. In W. Kuipers & D. Pauleen (Ed.), *A handbook of practical wisdom: Leadership, organization and integral business practice* (in press).
- Birmingham, C. (2004). Phronesis: A Model for Pedagogical Reflection. *Journal of Teacher Education*, 55(4), 313-324.
- Birren, J.E., & Fisher, L.M., 1990. The elements of wisdom: Overview and integration. . In R. J. Sternberg (ed.), *Wisdom: Its Nature, Origins, and Development*, Cambridge University Press, Cambridge.
- Bolino, M.C., Turnley, W.H., & Bloodgood, J.M., 2002. Citizenship behavior and the creation of social capital in organizations. *Academy of Management Review* 27(4), 505-522.

Bowen, F. E., Rostami, M., Steel, P., 2010. Timing is Everything: a Meta-Analysis of the Relationships Between Organizational Performance and Innovation. *Journal of Business Research* 63 (11), 1179-1185.

Boyatzis, R., and Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development*, 27(1), 5-12.

Bradley, R. T. (2007). The Psychophysiology Of Intuition: A Quantum-Holographic Theory Of Nonlocal Communication. *World Futures*, 63(2), 61-97.

Branson, C.M., 2007. Improving Leadership by Nurturing Moral Consciousness Through Structured Self-Reflection. *Journal of Educational Administration* 45 (4), 471-495.

Bredillet, C., Tywoniak, S., & Dwivedula, R. (2015). What is a good project manager? An Aristotelian perspective. *International Journal of Project Management*, 33(2), 254-266.

Brenkert, G. G. (2009). Innovation, rule breaking and the ethics of entrepreneurship. *Journal of Business Venturing*, 24(5), 448-464.

Brentani, U., & Reid, S. E. (2012). The Fuzzy Front-End of Discontinuous Innovation: Insights for Research and Management. *Journal of Product Innovation Management*, 29(1), 70-87.

Bright, D.S., Cameron, K.S., & Caza, A., 2006. The amplifying and buffering effects of virtuousness in downsized organizations. *Journal of Business Ethics* 64(3), 249-269.

Brockmann, E.N., & Anthony, W.P., 1998. The influence of tacit knowledge and collective mind on strategic planning. *Journal of Managerial Issues* 10, 204-219.

Brown, A.D., Starkey, K., 2000. Organizational Identity and Learning: a Psychodynamic Perspective. *Academy of Management Review* 25, 102-120.

Brownlie, D., Spender, J.C., 1995. Managerial Judgement in Strategic Marketing: Some Preliminary Thoughts. *Management Decision* 33 (6), 39-50.

Calantone, R.J., Cavusgil, T.S., Zhao, Y., 2002. Learning Orientation, Firm Innovation Capability, and Firm Performance. *Industrial Marketing Management* 31, 515-524.

Cameron, K., & Caza, A., 2002. Organizational and leadership virtues and the role of forgiveness. *Journal of Leadership & Organizational Studies* 9(1), 33-48.

Cameron, K., & Winn, B., 2012. Virtuousness in organizations. In K. S. Cameron & G. M. Spreitzer (Ed.), *Oxford handbook of positive organizational scholarship*. New York: Oxford University Press.

Cameron, K.S., & Caza, A., 2004. Introduction contributions to the discipline of positive organizational scholarship. *American Behavioral Scientist* 47(6), 731-739.

Cameron, K.S., & Lavine, M., 2006. Making the impossible possible: Leading extraordinary

performance--the rocky flats story. Berrett-Koehler Publishers.

Cameron, K.S., Bright, D., Caza, A., 2004. Exploring the Relationships Between Organizational Virtuousness and Performance. *American Behavioral Scientist*, 4, 766–790.

Cantner, U., Joel, K., & Schmidt, T. (2011). The effects of knowledge management on innovative success – An empirical analysis of German firms. *Research Policy*, 40(10), 1453-1462.

Caza, A., Barker, B.A., Cameron, K.S., 2004. Ethics and Ethos: The Buffering and Amplifying Effects of Ethical Behavior and Virtuousness. *Journal of Business Ethics* 52 (2), 169-178.

Chia, R., 2004. Strategy as practice: Reflections on the research agenda. *European Management Review* 1(1), 29-34.

Choi, B., Jong, A.M., 2010. Assessing the Impact of Knowledge Management Strategies Announcements on the Market Value of Firms. *Information & Management* 47 (1), 42-52.

Colby, A., Kohlberg, L., Gibbs, J., Lieberman, M., Fischer, K., & Saltzstein, H.D., 1983. A longitudinal study of moral judgment. *Monographs of the society for research in child development* 48, 1-124.

Collis, D.J., 1994. Research note: How valuable are organizational capabilities?. *Strategic management journal* 15, 143-152.

Colman, A. M., Pulford, B. D., & Rose, J. (2008). Collective rationality in interactive decisions: Evidence for team reasoning. *Acta Psychologica*, 128(2), 387-397.

Cooper, L.P., 2003. A Research Agenda to Reduce Risk in New Product Development Through Knowledge Management: a Practitioner Perspective. *Journal of Engineering and Technology Management* 20, 117–140.

Crossan, M. M., Lane, H. W., & White, R. E. (1999). An Organizational Learning Framework: From Intuition to Institution. *Academy of Management Review*, 24(3), 522-537.

Cugueró-Escofet, N., & Fortin, M. (2014). One Justice or Two? A Model of Reconciliation of Normative Justice Theories and Empirical Research on Organizational Justice. *Journal of Business Ethics*, 124(3), 435-451.

Damanpour, F., 1991. Organizational innovation: A meta-analysis of Effects of Determinants and Moderators. *Academy of Management Journal* 34, 555–590.

Dane, E., & Pratt, M.G., 2007. Exploring intuition and its role in managerial decision making. *Academy of Management Review* 32(1), 33-54.

Dayan, M., & Elbanna, S. (2011). Antecedents of Team Intuition and Its Impact on the Success of New Product Development Projects. *Journal of Product Innovation Management*, 28(s1), 159-174.

- Dean, J.W., Ottensmeyer, E., & Ramirez, R., 1997. An aesthetic perspective on organizations. In G. L. Cooper & S. E. Jackson (Ed.), *Creating tomorrow's organizations: A handbook for future research in organizational behavior* 419-437. New York: John Wiley.
- Dorfler, V., & Ackermann, F. (2012). Understanding intuition: The case for two forms of intuition. *Management Learning*, 43(5), 545-564.
- Dutta, D.K., & Crossan, M.M., 2005. The nature of entrepreneurial opportunities: Understanding the process using the 4i organizational learning framework. *Entrepreneurship Theory and Practice* 29(4), 425-449.
- Cunha, M.P., & Chia, R., 2007. Using teams to avoid peripheral blindness. *Long Range Planning* 40(6), 559-573.
- Eflin, J., 2003. Epistemic Presuppositions and Their Consequences. *Metaphilosophy* 34, 48–67.
- Eisenhardt, K. M. (1999). Strategy as strategic decision making. *Sloan Management Review*, 40(3).
- Ellinger, A.D., Ellinger, A.E., Yang, B., Howton, S.W., 2002. The Relationship between the Learning Organization Concept and Firm's Financial Performance: An Empirical Assessment. *Human Resource Development Quarterly* 13, 5-21.
- Eisenhardt, K.M., & Martin, J.A., 2000. Dynamic capabilities: What are they. *Strategic management journal* 21(1), 1105-1121.
- Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H., 1996. Individual differences in intuitive–experiential and analytical–rational thinking styles. *Journal of personality and social psychology* 71(2), 390-405.
- Erden, Z., von Krogh, G., & Nonaka, I. (2008). The quality of group tacit knowledge. *The Journal of Strategic Information Systems*, 17(1), 4-18.
- Fine, E.C., 1984. *The folklore text: From performance to print*. Indiana University Press Bloomington.
- Fineman, S., 1996. Emotion and Organizing, in: S.R. Clegg, C. Hardy, W.R. Nord (Eds.), *The Handbook of Organizational Studies*, London, Sage, 543-564.
- Flyvbjerg, B., 2004. Phronetic planning research: Theoretical and methodological reflections. *Planning Theory & Practice* 5(3), 283-306.
- Fornell, C., Larcker, D.F., 1981. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research* 18 (1), 39-51.
- Fowers, B. J. (2003). Reason and Human Finitude: In Praise of Practical Wisdom. *American Behavioral Scientist*, 47(4), 415-426.
- Fredrickson, B.L., 1998. What good are positive emotions?. *Review of general psychology*

2(3), 300-319.

Frické, M. (2009). The knowledge pyramid: a critique of the DIKW hierarchy. *Journal of Information Science*, 35(2), 131-142.

Gagliardi, P., 1990. Artifacts as pathways and remains of organizational life. In P. Gagliardi (ed.), *Symbols and artifacts: Views of the corporate landscape* 3-38. Berlin: de Gruyter.

Gagliardi, P., 1996. Exploring the Aesthetic Side of Organizational Life, in: S.R. Clegg, C. Hardy, W. Nord (Eds.), *Handbook of Organizational Studies*. Sage, London.

Gambrell, K. M., Matkin, G. S., & Burbach, M. E. (2011). Cultivating Leadership: The Need for Renovating Models to Higher Epistemic Cognition. *Journal of Leadership & Organizational Studies*, 18(3), 308-319.

George, J.M., 1991. State or trait: Effects of positive mood on prosocial behaviors at work. *Journal of Applied Psychology* 76(2), 299-307.

Ghiselli, E.E., Campbell, J.P., Zedeck, S., 1981. *Measurement Theory for the Behavioral Sciences*. Freeman, San Francisco.

Gibbert, M. (2004). Crafting Strategy Imaginatively:: Lessons Learnt from Siemens. *European Management Journal*, 22(6), 669-684.

Goode, M. R., Dahl, D. W., & Moreau, C. P. (2013). Innovation Aesthetics: The Relationship between Category Cues, Categorization Certainty, and Newness Perceptions. *Journal of Product Innovation Management*, 30(2), 192-208.

Grant, R.M., 1996. Prospering in Dynamically-Competitive Environments: Organizational Capability As Knowledge Integration. *Organization Science* 7, 375–387.

Gudixsen, S. (2015). Business Model Design Games: Rules and Procedures to Challenge Assumptions and Elicit Surprises. *Creativity and Innovation Management*.

Hall, R., & Andriani, P., 2003. Managing knowledge associated with innovation. *Journal of business Research* 56(2), 145-152.

Halverson, R., 2004. Accessing, Documenting, and Communicating Practical Wisdom: the Phronesis of School Leadership Practice. *American Journal of Education* 111 (1), 90–112.

Hamel, G., & Prahalad, C., 1994. *Competing for the future*. Boston: Harvard Business School Press.

Hannond, K., Hamm, R.M., Grassia, J., & Pearson, T., 1987. Direct comparison of the efficacy of intuitive and analytical cognition in expert judgment. *IEEE Transactions on Systems, Man, and Cybernetics* 17(5), 753-770.

Hansen, H., Ropo, A., Sauer, E., 2007. Aesthetic Leadership. *The Leadership Quarterly* 18, 544–560.

- Hargadon, A.B., 1998. Firm as knowledge brokers: Lessons in pursuing continuous innovation. *California Management Review* 40(3), 209-227.
- Harrison, S. H., Ashforth, B. E., & Corley, K. G. (2009). Organizational sacralization and sacrifice. *Research in Organizational Behavior*, 29(0), 225-254.
- Hayes, J.R., 1989. *The Complete Problem Solver*. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Helfat, C.E., & Peteraf, M.A., 2003. The dynamic resource-based view: Capability lifecycles. *Strategic management journal* 24(10), 997-1010.
- Hensman, A., & Sadler-Smith, E., 2011. Intuitive decision making in banking and finance. *European Management Journal* 29(1), 51-66.
- Hitt, L.M., & Brynjolfsson, E., 1996. Productivity, business profitability, and consumer surplus: Three different measures of information technology value. *MIS quarterly*, 121-142.
- Hodgkinson, G. P., Sadler-Smith, E., Burke, L. A., Claxton, G., & Sparrow, P. R. (2009). Intuition in Organizations: Implications for Strategic Management. *Long Range Planning*, 42(3), 277-297.
- Holliday, S.G., & Chandler, M.J., 1986. *Wisdom: Explorations in adult competence*. Contributions to human development 17, Karger, Basel.
- Hughes, G.J., 2001. *Aristotle on Ethics*. Routledge, London.
- Hult, G.T. M., Ketchen, D.J., Cavusgil, S.T., Calantone, R.J., 2006. Knowledge as a strategic resource in supply chains. *Journal of Operations Management*, 24(5), 458-475.
- Hult, G.T.M., Hurley, R.F., Knight, G.A., 2004. Innovativeness: Its Antecedents and Impact on Business Performance. *Industrial Marketing Management* 33, 429-438.
- Hurley, R., Hult, G.T.M., 1998. Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination. *Journal of Marketing* 62, 42-54.
- Isen, A.M., Daubman, K.A., Nowicki, G.P., 1987. Positive Affect Facilitates Creative Problem Solving. *Journal of Personality and Social Psychology* 52, 1122-1131.
- Isenberg, D. J., 1984. How Senior Managers Think. *Harvard Business Review* 62(6), 81-90.
- Izak, M., 2013. The foolishness of wisdom: Towards an inclusive approach to wisdom in organization. *Scandinavian Journal of Management* 29(1), 108-115.
- Jashapara, A., 2004. *Knowledge management: An integrated approach*. FT Prentice Hall, Harlow.
- Jessup, L.M., & Valacich, J.S., 2003. *Information systems today*. Prentice Hall: Upper Saddle River, NJ, USA.

- Jones, C.A., 2005. Wisdom paradigms for the enhancement of ethical and profitable business practices. *Journal of Business Ethics* 57(4), 363-375.
- Judge, W.Q., & Miller, A., 1991. Antecedents and outcomes of decision speed in different environmental context. *Academy of Management Journal* 34(2), 449-463.
- Jung, C.G., 1988. *Psychological Types*, in: J. Campbell (Ed.), *The Portable Jung*. New York, Penguin Books, 178-269.
- Kane, J., Patapan, H., 2006. In Search of Prudence: The Hidden Problem of Managerial Reform. *Public Administration Review* 66 (5), 711-724.
- Kaufmann, L., Meschnig, G., & Reimann, F., 2014. Rational and intuitive decision-making in sourcing teams: Effects on decision outcomes. *Journal of Purchasing and Supply Management* 20(2), 104-112.
- Kekes, J., 1983. Wisdom. *American Philosophical Quarterly* 20(3), 277-286.
- Kessler, E.H., 2006. Organizational Wisdom: Human, Managerial, and Strategic Implications. *Group & Organization Management* 31 (3), 296-299.
- Khatri, N., & Ng, H.A., 2000. The role of intuition in strategic decision making. *Human Relations* 53(1), 57-86.
- Kirkeby, O. F. (2009). Phronesis as the Sense of the Event. *International Journal of Action Research*, 5(1), 69-113.
- Kitchener, K.S., & Brenner, H.G., 1990. Wisdom and reflective judgment: Knowing in the face of uncertainty. In Sternberg, R. (Ed.), *Wisdom: Its nature, origins, and development*, 212-229. New York: Cambridge.
- Klein, G., 2004. *The power of intuition: How to use your gut feelings to make better decisions at work*. Currency, Doubleday, New York ,NY.
- Klein, G.A., 1999. *Sources of power: How people make decisions*. MIT Press, Cambridge MA.
- Koonce, L., Seybert, N., Smith, J., 2011. Causal Reasoning In Financial Reporting and Voluntary Disclosure. *Accounting, Organizations and Society* 36 (4-5), 209-225.
- Korac-Kakabadse, N., Korac-Kakabadse, A., & Kouzmin, A., 2001. Leadership renewal: Towards the philosophy of wisdom. *International Review of Administrative Sciences* 67(2), 207-227.
- Korthagen, F.A.J., 2005. The Organization in Balance: Reflection and Intuition as Complementary Processes. *Management Learning* 36 (3), 371-387.

- Kuepers, W., 2011. Transform: Leader- and Followership as an Embodied, Emotional and Aesthetic Practice for Creative Transformation in Organizations. *Leadership & Organization Development Journal* 32 (1), 20-40.
- Kumar, N., Stern, L.W., Anderson, J.C., 1993. Conducting Interorganizational Research Using Key Informants. *Academy of Management Journal* 36 (6), 1633-1651.
- Küpers, W.M., 2007. Phenomenology and integral pheno-practice of wisdom in leadership and organization. *Social Epistemology* 21(2), 169-193.
- Küpers, W.M., 2008. Embodied "Inter-Learning" - An Integral Phenomenology of Learning in and by Organizations. *The Learning Organization* 15 (5), 388-408.
- Lange, R., & Houran, J., 2010. A transliminal view of intuitions in the workplace. *North American Journal of Psychology* 12(3), 501-516.
- Lindell, M.K., & Whitney, D.J., 2001. Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology* 86(1), 114-121.
- Linley, P. A. (2003). Positive adaptation to trauma: Wisdom as both process and outcome. *Journal of Traumatic Stress, 16*(6), 601-610.
- Makadok, R., 2001. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic management journal* 22(5), 387-401.
- Malan, L.-C., & Kriger, M. P. (1998). Making Sense of Managerial Wisdom. *Journal of Management Inquiry, 7*(3), 242-251.
- Marotto, M., Roos, J., & Victor, B. (2007). Collective Virtuosity in Organizations: A Study of Peak Performance in an Orchestra. *Journal of Management Studies, 44*(3), 388-413.
- Matsuda, T., 1992. Organizational intelligence: Its significance as a process and as a product. In *Proceedings of CEMIT 92/CECOIA 3 International Conference in Economics, Management and Information Technology* 219-222, Japan Society for Management Information, Tokyo.
- Matzler, K., Uzelac, B., & Bauer, F. (2014). The Role of Intuition and Deliberation for Exploration and Exploitation Success. *Creativity and Innovation Management, 23*(3), 252-263.
- McCullough, M.E., Snyder, C.R., 2000. Classical Sources of Human Strength: Revisiting an Old Home and Building a New One. *Journal of Social And Clinical Psychology* 19, 1-10.
- McKenna, B., Rooney, D., & Liesch, P. W. (2006). Beyond Knowledge to Wisdom in International Business Strategy. *Prometheus, 24*(3), 283-300.
- McKenna, B., Rooney, D., Boal, K.B., 2009. Wisdom Principles as a Meta-Theoretical Basis for Evaluating Leadership. *The Leadership Quarterly* 20 (2), 177-190.

- McNamee, S., 1998. Reinscribing organizational wisdom and courage: The relationally engaged organization. In S. Srivastva & D. L. Cooperrider (Ed.), *Organizational wisdom and executive courage* 101-117. San Francisco: New Lexington Press.
- Meacham, J. A., 1990. The Loss of Wisdom. In R. J. Sternberg (ed.), *Wisdom: Its Nature, Origins and Development* 181-211. New York, NY: Cambridge University Press.
- Melé, D., 2010. Practical Wisdom in Managerial Decision Making. *The Journal of Management Development* 29 (7/8), 637-645.
- Michaels, S., Goucher, N.P., & McCarthy, D., 2006. Considering knowledge uptake within a cycle of transforming data, information, and knowledge. *Review of Policy Research* 23(1), 267-279.
- Mick, D.G., Bateman, T.S., Lutz, R.J., 2009. Wisdom: Exploring the pinnacle of human virtues as a central link from micromarketing to macromarketing. *Journal of Macromarketing* 29 (2), 98-118.
- Miller, D., 1987. The structural and Environmental Correlates of Business Strategy. *Strategic Management Journal* 8 (1), 55-76.
- Miller, D., Dröge, C., 1986. Psychological and Traditional Determinants of Structure. *Administrative Science Quarterly* 31 (4), 539-560.
- Miller, K. (2003). Collective Reasoning and the Discursive Dilemma. *Philosophical Explorations*, 6(3), 182-200.
- Miller, K. D., & Lin, S.-J. (2014). Analogical reasoning for diagnosing strategic issues in dynamic and complex environments. *Strategic Management Journal*.
- Mintzberg, H., 1994. *Rise and fall of strategic planning*. Englewood Cliffs, NJ: Prentice Hall.
- Mintzberg, H., Ahlstrand, B., Lampel, J., 1998. *Strategy Safari: a Guided Tour Through the Wilds of Strategic Management*. New York, The Free Press.
- Mintzberg, H., Ahlstrand, B.W., & Lampel, J., 1998. *Strategy safari: A guided tour through the wilds of strategic management.* New York: Free Press.
- Mohrman, S.A., Finegold, D., Mohrman, A.M., 2003. An Empirical Model of the Organization Knowledge System in New Product Development Firms. *Journal of Engineering and Technology Management* 20, 7-38.
- Morgan, C.R., Palaniappan, T., 2009. The Relationship Between Ethics, Common Sense, and Rationality. *Management Decision* 47 (3), 481-490.
- Morse, J., 1999. Who is the Ethics Expert? The Original Footnote to Plato. *Business Ethics Quarterly* 9 (4), 693-697.

- Mowen, J.C., Fang, X., Scott, K., 2010. Visual Product Aesthetics: a Hierarchical Analysis of Its Trait and Value Antecedents and Its Behavioral Consequences. *European Journal of Marketing* 44 (11/12), 1744-1762.
- Mumby, D.K., 2004. Nomadic Theorizing With a Power Compass: Clegg, Interstitiality, and Critical Organizational Communication Studies. *Management Communication Quarterly* 18 (1), 115-128.
- Nahapiet, J., & Ghoshal, S., 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review* 23(2), 242-266.
- Nonaka, I., & Takeuchi, H., 1995. *The knowledge-creating company: How japanese companies create the dynamics of innovation*: Oxford university press.
- Nonaka, I., Toyama, R., 2005. The Theory of the Knowledge-Creating Firm: Subjectivity, Objectivity and Synthesis. *Industrial And Corporate Change* 14 (3), 419-436.
- Novicevic, M.M., Hench, T.J., Wren, D.A., 2002. "Playing by ear"..."in an Incessant Din of Reasons": Chester Barnard and the History of Intuition in Management Thought. *Management Decision* 40 (10), 992-1002.
- Oliver, D., Statler, M., Roos, J., 2010. A Meta-Ethical Perspective on Organizational Identity. *Journal of Business Ethics* 94 (3), 427-440.
- Ostenfeld, E.N., 2003. Socratic wisdom; The model of knowledge in plato's early dialogues . *The Classical Review* 53(1), 44-48.
- Owen, J. H., & Huang, N. (2007). Local improvements that degrade system performance: case studies and discussion for throughput analysis. *International Journal of Production Research*, 45(10), 2351-2364.
- Parikh, J., Neubauer, F., Lank, A.G., 1994. *Intuition: The New Frontier in Management*, Cambridge.
- Pasupathi, M., Staudinger, U.M., & Baltes, P.B., 2001. Seeds of wisdom: Adolescents' knowledge and judgment about difficult life problems. *Developmental psychology* 37(3), 351-361.
- Payne, G. T., Moore, C. B., Bell, R. G., & Zachary, M. A. (2013). Signaling Organizational Virtue: an Examination of Virtue Rhetoric, Country-Level Corruption, and Performance of Foreign IPOs from Emerging and Developed Economies. *Strategic Entrepreneurship Journal*, 7(3), 230-251.
- Pinheiro, P., Raposo, M., Hernández, R., 2012. Measuring Organizational Wisdom Applying an Innovative Model of Analysis. *Management Decision* 50 (8), 1465-1487.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P., 2003. Common Method Bias in Behavioral Research: a Critical Review of the Literature and Recommended Remedies. *Journal Applied Psychology* 88, 879-903.

- Podsakoff, P.M., Organ, D., 1986. Reports in Organizational Research: Problems and Prospects. *Journal of Management* 12 (4), 531-545.
- Prewitt, V. R. (2002). Wisdom In The Workplace. *Performance Improvement Quarterly*, 15(1), 84-98.
- Ramírez, R. (2005). The aesthetics of cooperation. *European Management Review*, 2(1), 28-35.
- Ramirez, R., 1991. The beauty of social organization. Munich: Accedo.
- Ramirez, R., 1996. Wrapping form and organizational beauty. *Organization* 3(2), 233-242.
- Rhee, S.-Y., Dutton, J. E., & Bagozzi, R. P. (2006). Making Sense of Organizational Actions with Virtue Frames and Its Links to Organizational Attachment. *Journal of Management, Spirituality & Religion*, 3(1-2), 34-59.
- Rhodes, C., 1997. The legitimation of learning in organizational change. *Journal of Organizational Change Management* 10(1), 10-20.
- Rigby, D.K., Christensen, C.M., & Johnson, M., 2002. Foundations for growth: How to identify and build disruptive new businesses. *MIT Sloan Management Review* 43(3), 22-32.
- Ritter, T., & Gemünden, H.G., 2004. The impact of a company's business strategy on its technological competence, network competence and innovation success. *Journal of business Research* 57(5), 548-556.
- Robinson, D. N., 1990. Wisdom through the ages. In R. J. Sternberg (ed.), *Wisdom: Its nature, origins, and development*, 3-12. Melbourne, Australia: Cambridge Pres.
- Rooney, D., & McKenna, B. (2005). Should the Knowledge-based Economy be a Savant or a Sage? *Wisdom and Socially Intelligent Innovation. Prometheus*, 23(3), 307-323.
- Rooney, D., & McKenna, B. (2007). Wisdom in Organizations: Whence and Whither. *Social Epistemology*, 21(2), 113-138.
- Rooney, D., McKenna, B., 2008. Wisdom in Public Administration: Looking for Sociology of Wise Practice. *Public Administration Review* 68 (4), 709-721.
- Rosser, R.A., 1994. *Cognitive development: Psychological and biological perspectives*. Massachusetts : Allyn and Bacon.
- Rowley, J., 2006. What Do We Need to Know About Wisdom?. *Management Decision* 44 (9), 1246-1257.
- Rowley, J., 2006. Where is the Wisdom That We Have Lost in Knowledge?. *Journal Of Documentation* 62 (2), 251-270.
- Rowley, J., Gibbs, P., 2008. From Learning Organization to Practically Wise Organization. *The Learning Organization* 15 (5), 356-372.

- Rutgers, M.R., 1999. Be rational! But What Does It Mean? A History of the Idea of Rationality and Its Relation to Management Thought. *Journal of Management History* 5 (1), 17-35.
- Sadler-Smith, E. (2008). The Role of Intuition in Collective Learning and the Development of Shared Meaning. *Advances in Developing Human Resources*, 10(4), 494-508.
- Sadler-Smith, E. (2013). Toward Organizational Environmental Virtuosity. *The Journal of Applied Behavioral Science*, 49(1), 123-148.
- Sadler-Smith, E. and Sparrow, P.R., 2008. Intuition in organisational decision making. In Hodkinson, G.P. and Starbuck, W.H. (Eds), *Organisational Decision Making*, Oxford University Press, New York, NY 305 - 324 .
- Salas, E., Rosen, M. A., & DiazGranados, D. (2009). Expertise-Based Intuition and Decision Making in Organizations. *Journal of Management*, 36(4), 941-973.
- Sampson, E.E., 1998. The political organization of wisdom and courage. In S. Srivastva & D. L. Cooperrider (Ed.), *Organizational wisdom and executive courage* 118–133. San Francisco: The New Lexington Press.
- Sayegh, L., Anthony, W. P., & Perrewé, P. L. (2004). Managerial decision-making under crisis: The role of emotion in an intuitive decision process. *Human Resource Management Review*, 14(2), 179-199.
- Schein, E.H., 2006. From brainwashing to organizational therapy: A conceptual and empirical journey in search of ‘systemic’ health and a general model of change dynamics. A drama in five acts. *Organization Studies* 27(2), 287-301.
- Schmit, M.J., Ryan, M., 1993. The Big Five in Personnel Selection: Factor Structure in Applicant and Non-applicant Populations. *Journal of Applied Psychology* 78 (6), 966-974.
- Segalowitz, S., 2007. Knowing before we know: Conscious versus preconscious top-down processing and a neuroscience of intuition. *Brain and cognition* 65(2), 143-144.
- Seligman, M.E.P., Csikszentmihalyi, M., 2000. Positive Psychology: an Introduction. *American Psychologist* 55, 5-14.
- Sethi, R., & Nicholson, C.Y., 2001. Structural and contextual correlates of charged behavior in product development teams. *Journal of Product Innovation Management* 18(3), 154-168.
- Shapiro, S., Spence, M.T., 1997. Managerial Intuition: a Conceptual and Operational Framework. *Business Horizons* 40 (1), 63-68.
- Shin, M., 2004. A Framework for Evaluating Economics of Knowledge Management Systems. *Information & Management* 42 (1), 179-196.
- Simon, F., 2013. The influence of empathy in complaint handling: Evidence of grateful and transactional routes to loyalty. *Journal of Retailing and Consumer Services* 20(6), 599-

608.

Simon, H., 1976. From Substantive to Procedural Rationality, in: S.J. Latsis (Ed.), *Method and Appraisal in Economics*. Cambridge University Press.

Simon, H.A., 1987. Making management decisions: The role of intuition and emotion. *The Academy of Management Executive* 1(1), 57-64.

Sinclair, M., Ashkanasy, N.M., 2005. Intuition: Myth or a Decision-Making Tool?. *Management Learning* 36 (3), 353-370.

Small, M. W. (2004). Wisdom and now managerial wisdom: do they have a place in management development programs? *Journal of Management Development*, 23(8), 751-764.

Srinivasan, V., Lovejoy, W.S., Beach, D., 1997. Integrated Product Design for Marketability and Manufacturing. *Journal Of Marketing Research* 34 (1), 154-163.

Statler, M., Roos, J., & Victor, B. (2007). Dear Prudence: An Essay on Practical Wisdom in Strategy Making. *Social Epistemology*, 21(2), 151-167.

Staudinger, U.M., 1996. Wisdom and the social-interactive foundation of the mind. In P. B. Baltes & U. M. Staudinger (Ed.), *Interactive minds: Life-span perspectives on the social foundation of cognition* 276-315. New York: Cambridge University Pres.

Staw, B.M., Barsade, S.CC., 1993. Affect and Managerial Performance: a Test of the Sadder-but-Wiser Vs. Happier-and-Smarter Hypotheses. *Administrative Science Quarterly* 38, 304-331.

Sternberg, R. J. (2004). What is Wisdom and How Can We Develop It? *The ANNALS of the American Academy of Political and Social Science*, 591(1), 164-174.

Sternberg, R. J. (2005). A model of educational leadership: Wisdom, intelligence, and creativity, synthesized. *International Journal of Leadership in Education*, 8(4), 347-364.

Sternberg, R.J., 1998. *Wisdom: Its Nature, Origins, and Development*. Cambridge University Press, Cambridge, MA.

Strati, A. (2010). Aesthetic Understanding of Work and Organizational Life: Approaches and Research Developments. *Sociology Compass*, 4(10), 880-893.

Strati, A., 1992. Aesthetic understanding of organizational life. *Academy of Management Review* 17(3), 568-581.

Strati, A., 1999. *Organization and aesthetics*. London: Sage.

Sundgren, M., and Styhre, A. (2004). Intuition and pharmaceutical research: the case of AstraZeneca. *European Journal of Innovation Management*, 7(4), 267-279.

Taylor, S. S. (2002). Overcoming Aesthetic Muteness: Researching Organizational Members' Aesthetic Experience. *Human Relations*, 55(7), 821-840.

- Taylor, S. S. (2013). Little Beauties: Aesthetics, Craft Skill, and the Experience of Beautiful Action. *Journal of Management Inquiry*, 22(1), 69-81.
- Taylor, S., Hansen, H., 2005. Finding Form: Looking at the Field of Organizational Aesthetics. *Journal of Management Studies* 42 (6), 1211-1231.
- Taylor, S.S., 2002. Overcoming aesthetic muteness: Researching organizational members' aesthetic experience. *Human Relations* 55(7), 821-840.
- Teece, D., Pisano, G., Shuen, A., 1997. Dynamic Capabilities and Strategic Management. *Strategic Management Journal* 18 (7), 509-533.
- Torbert, W.R., 1998. Developing wisdom and courage in organizing and sciencing. In S. Srivastva & D. L. Cooperrider (Ed.), *Organizational wisdom and executive courage* 222–253. San Francisco: The New Lexington Press.
- Tsoukas, H., 2005. *Complex Knowledge: Studies in Organizational Epistemology*. Oxford University Press, Oxford.
- Turner, N., Barling, J., Epitropaki, O., Butcher, V., & Milner, C., 2002. Transformational leadership and moral reasoning. *Journal of Applied Psychology* 87(2), 304-311.
- Usunier, J-C., 2011. Language as a Resource to Assess Cross-Cultural Equivalence in Quantitative Management Research. *Journal of World Business* 46 (3), 314-319.
- van Loon, Risk and Technological Culture: Towards a Sociology of Virulence, Routledge, London, 2002, p. 5.
- Walsh, V., 1994. Rationality as Self-Interest Versus Rationality as Present Aims. *American Economic Review* 84 (2), 401-405.
- Walter, G.A., 1993. Wisdom's Critical Requirement for Scientific Objectivity in Organizational Behavior Research: Explicit Reporting of Research Values, in: R.T. Golembiewski (Ed.), *Handbook Of Organizational Behavior*. M. Dekker, New York, 491–524.
- Wang, C.L., Ahmed, P.K., 2004. The development and validation of the organizational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management* 7 (4), 303-313.
- Wang, Y., Lo, H.-P., & Yang, Y. (2004). The constituents of core competencies and firm performance: evidence from high-technology firms in china. *Journal of Engineering and Technology Management*, 21(4), 249-280.
- Weaver, G. R. (2006). Virtue in Organizations: Moral Identity as a Foundation for Moral Agency. *Organization Studies*, 27(3), 341-368.
- Weick, K.E., 1995. *Sensemaking in organizations*. Thousands Oaks: Sage Publications Inc.

- Weick, K.E., 1998. The Attitude of Wisdom: Ambivalence as the Optimal Compromise, in: S. Srivasta & D.L. Cooperrider (Eds.), *Organizational Wisdom and Executive Courage*. New Lexington Press, San Francisco, 40-64.
- Weiner, N., & Mahoney, T.A., 1981. A model of corporate performance as a function of environmental, organizational, and leadership influences. *Academy of Management Journal* 24(3), 453-470.
- Whetstone, J.T., 2003. The Language of Managerial Excellence: Virtues as Understood and Applied, *Journal of Business Ethics* 44, 343–357.
- White, D.A., 1996. 'It's working beautifully!'Philosophical reflections on aesthetics and organization theory. *Organization* 3(2), 195-208.
- Whittington, R., 2004. Strategy after modernism: Recovering practice. *European Management Review* 1(1), 62-68.
- Witz, A., Warhurst, C., Nickson, D., 2003. The labour of Aesthetics and the Aesthetics of Organization. *Organization* 10 (1), 33-54.
- Yang, B., 2003. Political Factors In Decision Making and Implications for HRD Baiyin. *Advances In Developing Human Resources* 5 (4), 458-479.
- Yang, S-Y., 2011. Wisdom Displayed Through Leadership: Exploring Leadership-Related Wisdom, *The Leadership Quarterly* 22 (4), 616-632.
- Yearwood, J., & Stranieri, A. (2009). Group Structured Reasoning for Coalescing Group Decisions. *Group Decision and Negotiation*, 19(1), 77-105.
- York, K.M., Mire, C.E., 2004. Causation or Covariation: An Empirical Re-Examination Of The Link Between TQM And Financial Performance, *Journal of Operations Management* 22, 291 – 311.
- Yuengert, A., 2011. Economics and Interdisciplinary Exchange in Catholic Social Teaching and "Caritas in Veritate, *Journal of Business Ethics*, Supplement 100, 41-54.
- Zackariasson, P., Styhre, A., & Wilson, T. L. (2006). Phronesis and Creativity: Knowledge Work in Video Game Development. *Creativity and Innovation Management*, 15(4), 419-429.
- Zaidman, N., & Goldstein-Gidoni, O. (2011). Spirituality as a Discarded Form of Organizational Wisdom: Field-Based Analysis. *Group & Organization Management*, 36(5), 630-653.
- Zhang, H., Basadur, T. M., & Schmidt, J. B. (2014). Information Distribution, Utilization, and Decisions by New Product Development Teams. *Journal of Product Innovation Management*, 31, 189-204.

CURRICULUM VITAE

Sümeyye Yücebılgılı Kırçovalı was born on April 14, 1980 in Istanbul. She completed her Bachelor Degree on Management in Anatolian University. She completed her Master Degree on Education Management of Ahmet Yesevi University. She owns a company operating in the Chemical Industry. She is married.