A Conceptual Framework for Wisdom in Auditing

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Doctoral Dissertation

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Abstract

An audit is an independent professional service that improves the quality of information for decision makers. An audit of financial statements is the determination of whether the financial statements of a company present a true and fair view of its state of affairs. In practice, auditing is a complex process posing great challenges because auditors often deal with complicated circumstances that they may have not experienced before or for which their knowledge may be irrelevant or inadequate. In these circumstances, they may be incapable to make accurate decisions and take proper actions. For example, the failure of Arthur Andersen in Enron's audit (2002) is an example of an auditing service lacking judgment in handling complex practices. The falsification that occurred in the Olympus scandal in Japan (2011) is another example of challenges to auditors in real contexts.

In addition, wisdom is mentioned as one of the most important aspects in management practice. Researchers argue that wisdom helps managers to use sound judgment when making decisions and call for empirical studies on this emerging topic. Although the concept of wisdom has been investigated intensively for centuries, very little research in the literature has attempted to examine the concept empirically. In auditing, research is still short of studies that explains how wisdom is able to improve auditor's decisions. In order to deal with complex, unforeseen, and turbulent situations in auditing, we need to investigate the concept of wisdom in auditing thoroughly.

To address the above issue, this study focuses on the research question: *"What are the concept of wisdom and its roles in auditing?"*. To answer the research question, we conducted a mixed adoption of a qualitative and a quantitative testing with two stages. Firstly, we conducted a qualitative research by employing grounded theory methodology in order to deeply investigate the new insights of the wisdom phenomenon in auditing. Then, to verify and justify the tentative theory from the qualitative research, we performed and analyzed a quantitative survey with a larger population of 78 practicing auditors. The findings from the qualitative research and the results of statistical tests provided us with useful suggestions to develop a more comprehensive explanation of wisdom in the auditing context.

The empirical findings revealed that the making of audit decisions is an integrated exercise of multiple virtues including epistemic aspects, phronetic judgment, and praxis tendency. Based on the theoretical implications from findings, the study proposed a conceptual framework for wisdom in auditing. The framework suggests that wisdom in auditing is embedded in decision making process and it can be achieved through an integration of multiple important virtues. *The*

first virtue is defined as the multi-dimensional integration of epistemic aspects in the form of general, technical, and subspecialty knowledge. *The second virtue* is relevant to the ability to exercise professional judgment. It is the enabling aspect of wisdom in practice. The study proposes that practicing auditors make "*phronetic judgment*" in wise decision making. Phronetic judgment implies that auditors, in making professional judgments, orient toward phronesis (practical wisdom) in professional life. *The third virtue*, or *praxis priority*, involves ethical aspect of an auditor in decision making. The empirical analyses indicated that "ethics is the core value to auditors". Praxis priory means that ethics is the first-priority values of an auditor in decision making. The ethical aspect is reflected through the requirements of professional conduct and code of ethics of an audit. These virtues are integrated in decision making since they have mutual relationships. A wisdom in auditing is defined as an integration of these important virtues.

This is one of the first empirical studies examining wisdom and auditing. The contributions of this study are original and significant since they deepen the wisdom concept and its associated virtues in auditing. The study enhances better understanding of the complex nature of wisdom and its associated virtues in the auditing context.

Keywords: wisdom**,** auditing, public accounting firm, professional judgment, decision making, audit knowledge, ethics.

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Kohda, Y., Nguyen,L., and Javed, A. (2017)). Knowledge Science as the Core Logic of Resource Integration: An Evolutionary View of Value Propositions in S-D logic, *Proceedings of the 5th International Conference on Serviceology (ICServ)*, Vienna, Wien, Austria, Jul. 2017.

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Nguyen, L., Umemoto, K., Kohda, Y. and Blake, J., (2015). Knowledge Management in Auditing: A Case Study in Vietnam, *16th European Conference on Knowledge Management (ECKM*), Proceedings of the 16th European Conference on Knowledge Management (ECKM 2015), Udine, Italy, Sep. 2015.

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Nguyen, L., Umemoto, K., Kohda Y., and Nguyen, H. (2014). Value Creation in Auditing Service: A Framework for Analysis. *The Third Asian Conference on Information Systems, Special Session on Service Science (ACIS-SS)*. Proceedings of the 3rd Asian Conference on Information Systems, pp. 506-513, Nha Trang, Vietnam, Dec. 2014.

Other Presentations

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- Best Paper Award of 50th -The Hawaii International Conference on System Sciences (HICSS 50), Hilton Waikoloa Village, Hawaii on January 4-7, 2017. *(Rank A conference)*
- HICSS Doctoral Fellow, Hilton Waikoloa Village, Hawaii on January 4-7, 2017.
- Best Presentation Award, JAIST Fellowship Report Session 2016.
- Best Poster Award of 16th European Conference on Knowledge Management (ECKM), Udine, Italy, Sep 2015. *(Rank B conference)*
- Best Poster Award of JAIST's Student Poster Challenge, Oct 2014.

Chapter 1 - Introduction

1.1 Overview

This chapter firstly presents the research problem. Next, the research objectives and questions are clarified. Then, the originality and significance of this study will be outlined as the motivation of our work. Later, the working terms and dissertation structure are explained. Finally, the organization of this dissertation shows the path of our ideas.

1.2 Research Problem

1.2.1 Wisdom

Wisdom is one of the least understood aspects of management practice, and yet possibly, it is the most important. Rooney et al. (2010) states that "knowledge in the absence of wisdom presents as a danger to the world." Researchers argue that wisdom helps managers to use sound judgment when making decisions (Intezari et al., 2016) and call for empirical studies on this emerging topic. Although the concept of wisdom has been investigated intensively for centuries (Baltes, et al., 1995; Bierly et al., 2000; Erikson, 1959; Nonaka and Toyama, 2007; Sternberg, 1998, 2004; Rooney et al. 2010; Webster, 1961), very little research in the literature has attempted to examine the concept empirically.

Many crises and scandals resulting from the failure of decisions are able to be seen in the past, e.g. the Enron (2001), WorldCom bankruptcies (2002), Tyco International (2002), Lehman Brothers (2008), Olympus scandal in Japan (2011), and so on. On the one hand, recent financial crises, the contemporary complex and rapidly changing business environment has altered the perspectives of researchers from the managing of information and knowledge towards the enhancing of wisdom.

Wisdom has been investigated primarily in philosophy, psychology, and management. However, the literature does not provide much empirical contributions. There is no much practical and realistic explanation of the contribution of wisdom in professional services.

1.2.2 Audit Service

1.2.2.1 Overview

An audit, as an independent professional service, helps decision makers improve the quality of information (Arens et al., 2014). Since audit of financial statements aims at determining whether the audited financial statements present a true and fair view of its state of affairs. During an audit process of a publicly listed company, the final result of an audit process is an auditor's opinion, for example, qualified or unqualified audit opinion.

The economic demand for auditing: Historically, auditing was established only in the later part of the nineteenth century and became more and more complex in the modern business world. The emerging of joint-stock companies in the 18th century resulted in the requirement of audit service. When shareholders contribute capital of invested companies but do not have control over the day-to-day working of the organizations, they would naturally be interested in knowing the financial position of the company. In order to enable shareholders to know this, a board of directors was formed to present as an account to them at the end of each financial year. Consequently, a problem of believing has been raised that whether their funds have been honestly and prudently managed or not. This *originated the need of an independent person* who would check the accounts and report back to the shareholders on the accuracy of the accounts and the safety of their investment. It is briefly a reason for the origin of audit service.

In practice, the best common method to attain reliable information is to ask for an independent audit. Then, an audit involves the relationships of auditor, client and external users of financial information. Usually, in order to ensure assurances to external users that financial statements are reliable, private company's management or audit committee settle up audit engagement with public accounting firm (Arens et al., 2014, p.8). Figure 1-1 illustrates the the relationships among auditor, client and financial statements users.

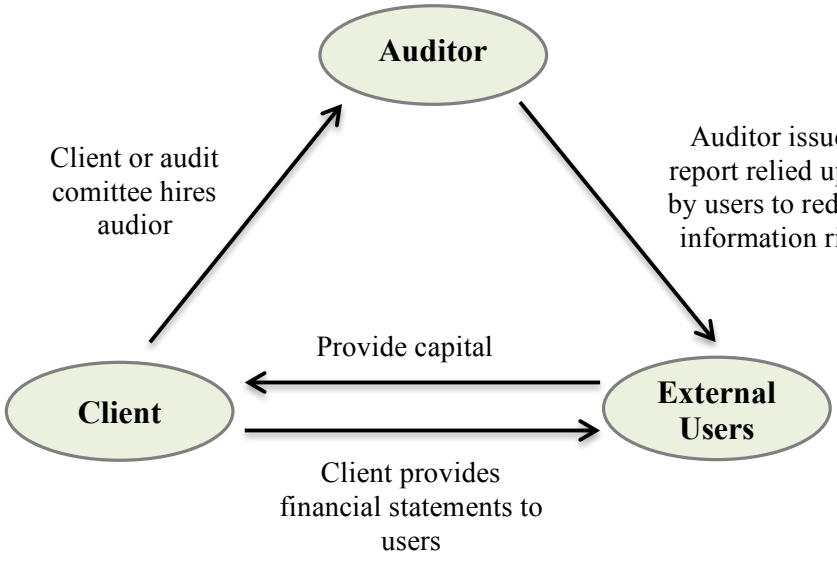

Figure 1-1: Relationships among Auditor, Client and External Users
(Source: Arens et al., 2014)

External users (eg.: stockholders, lenders, investors, ect.) rely on the truthfulness and fairness of the audited financial statements. When these decision makers believe in auditor's

report, consider it as an indication of the statement's liability, and assume that the audited financial information is complete, accurate, and unbiased, they are able to make decisions.

Values: Audit services are valued to private and public entities, the users of audited financial statements, and the financial capital market because an audit provider is independent and perceived as being free from bias when examining information. The audit service is valuable because the auditor is independent from the client and has good knowledge on financial reporting frameworks (Arens et al., 2014, p.8).

Private entities admit that auditing is an activity that reduces resource costs. Auditing is a useful tool in management to review and ensure the truthfulness and fairness of financial statements. Thus, audits serve as a monitoring device, and are part of the corporate governance mosaic (Cohen et al., 2002). *Governments* have also realized efficiency improvements cannot be achieved, and problems with resource allocation cannot be solved without qualified auditing processes. Auditors help *public sector organizations* achieve accountability and integrity, and improve operations by providing unbiased, objective assessments of whether public resources are being managed responsibly and effectively to achieve intended results (Nieuwlands, 2006). Moreover, auditing is crucial to *other users* who need to rely on audited financial statements, e.g., investors, tax authorities, and financial institutions. Individuals who are responsible for making decisions look for assurance services to improve the reliability and relevance of information that is used as the basis for their decisions (Arens et al., 2014). Furthermore, auditing is a cornerstone of *capital market governance* that helped to cope with the global financial crisis. Auditing is crucial to the sound functioning, integrity, and efficiency of capital markets because it strengthens investor trust in the financial information issued by companies (Hill, 2015).

1.2.2.2 Audit Process

To conduct an audit, audior must obtain appropriate audit evidence through audit process. In practice, the audit process has four specific phases.

- Phase I: Plan and design audit approach.

Phase I is the planning and design phase of an audit. During this phase, the auditor performs audit procedures to assess risk that material misstatements in the financial statements may be presented. Three key aspects include: (1) obtaining an understanding of the entity and its environment; (2) understanding internal control and assessing control risk; (3) assessing risk of material misstatements. The purpose of all the above tasks is to aid in the development of an overall audit plan and audit programme (Arens *et al*., 2014).

- Phase II: Perform tests of controls and substantive test of transactions.

Audior assess the effectiveness of client's internal controls to justify the control risk. This procedures are commonly referred to as **tests of controls**. Then, auditor also need to evaluate the client's recording of transactions in a process called **substantive tests of transactions**.

The objectives of this phase are first, to get evidence in support of those specific elements of the internal control system that contributed to the auditor's estimated level of control risk, and second to obtain evidence in support of the monetary correctness of transactions (Arens et al., 2014). The auditor apply technical ability to use structures and patterns to peform the tests.

- Phase III: Perform analytical procedures and tests of details of balances.

This phase of the audit involves two general categories. **Analytical procedures** consist of evaluations of financial information through analysis of plausible relationshipn among finanancial and non-financial data. **Tests of details of balances** are specific procedures intended to tests for monetary misstatement in the balances in the financial statements.

The objective of this phase is to obtain sufficient additional evidence to see whether the ending balances in a client's financial statements are fairly stated. The extent of this phase depends in part on the results of the first two phases (Arens et al., 2014).

- Phase IV: Complete the audit and issue an audit report.

The final phase of the audit involves summarising the results of the first three phases and issuing the audit report. After auditor has completed all the procedures, it is nessary to combine the information obtained to reach an overal conclusion as to whether the financial statements are fairly presented. This highly subjective process relies heavily on the audior's professional judgment (Arens et al., 2015).

This phase involves many of the same aspects, in that it involves the analytical elements of Phases II and III as the expert must analyse all that has happened during the audit and produce an audit report. A large amount of judgment is required in the preparation of the report.

1.2.2.3 Audit Team

An audit team is often settled up at the beginning of an audit engagement (or project) and removed after the completion of the audit. Normally, an audit team relates to the involvement of five levels of personnel. Each level has different levels of competence, experience, and duties or tasks with an audit team.

- *Audit assistants* are inexperienced personnel. They may be novices or freshmen that have no practical experience. The average working experience of audit assistants is around a few months to two years.
- *Audit seniors* usually have around two to five years of working experience. They often are experienced assistants and promoted to be seniors who act as audit team-leaders under the instructions of audit managers and partners.
- *Audit managers* are experienced employees who have five to ten years of working experience.
- *Directors* are experienced employees who have many years of working experience.
- *Partners* are the highest level of audit personnel who have more than ten years of

working and practical experience.

Managers, directors, and partners are responsible for the audited financial statements as certified public accountants. Audit assistants work on their tasks under the coaching and supervision of their seniors. Audit seniors are supervised and reviewed by partners, directors, and managers. In consequence, an audit is always conducted by an in-charged team that presents a different knowledge structure.

1.2.2.4 Challenges

In practice, auditing is a complex process that poses great challenges because auditors often deal with complicated circumstances that they may have not experienced before or for which their knowledge may be irrelevant or inadequate. In these circumstances, they may be incapable to make accurate decisions and take proper actions. For example, the failure of Arthur Andersen in Enron's audit (2002) is an example of an auditing service lacking judgment in handling complex practices. The falsification that occurred in the Olympus scandal in Japan (2011) is another example of challenges to auditors in real contexts.

Prior research on auditing focused on the auditing process and treated it as an information processing process, a judgment-decision making, or a knowledge management process. For example, Vaassen (1994) described auditing as a judgment-decision making process because an auditor makes several professional judgments during the course of an audit. Brown and Solomon (1991) proposed an information-processing framework for decision making in auditing.

Recent research has shifted to the knowledge management (KM) perspective to explain theoretical aspects of the auditing process (Fink, 2001; Nguyen et al., 2015; O'Leary, 2002). For example, Nguyen (2015) conducts a single case study at an auditing firm in Vietnam and presents a theoretical model in which auditing is treated as a KM process. That piece of research is the first study to investigate the transformation of data into information, information into knowledge, and knowledge into wisdom in the light of a complex context for an auditing service. Although the research emphasizes the important role of wisdom in auditing, it is still far from an in-depth explanation that identifies the determinants of wisdom.

1.2.3 Research Problem

Despite the significant advances in management of knowledge and information, auditors and audit firms have to encounter with great challenges in making accurate decisions, especially in a high pressure working environment like auditing.

In the view point that wisdom is able to help auditor in dealing with complex, unforeseen, and turbulent situations in auditing, we need to investigate the characteristics of wisdom thoroughly. Research in auditing needs to shift from focusing on data, information, and knowledge to a future-oriented approach that focuses on wisdom. In the view that data, information, knowledge are past-oriented means, whereas wisdom is a future-oriented means

of dealing with unforeseen and turbulent audit situations, this study proposes a new approach focusing on wisdom in auditing.

1.3 Research Objectives and Questions

To address the research gap, this study aimed to examine the definition of wisdom and explore the its roles the making of audit decisions.

By using a grounded theory methodology, the research conducted both qualitative and quantitative analyses with the following objectives. *Firstly*, in the qualitative part, the study is going to examine the concept of wisdom and its roles in auditing, then investigate the relationship among qualities that associated with wisdom. *Secondly*, based on the defined concept, in the quantitative research by a survey instrument, we aim to quantitatively analyze and test the influences of wisdom determinants to audit decision making process. Finally, in the combination of both qualitative and quantitative analyses, we propose a wisdom-based theory for decision making process in auditing.

The objectives and the literature review lead us to the major research question *"What are the concept of wisdom and its roles in auditing?"*

1.4 Research Originality and Significance

This study provides these significant implications: literarily understanding of the wisdom concept, its associated virtues and their relationship in auditing; helping auditors and audit firms with their roles; and ensuring better assurance services for society.

- Academic contributions: Although there have been many studies on the auditing process, they have mainly focused on practical aspects or technical issues. The prior studies view auditing as a policy-capturing pyramid, an information-based or knowledge-based process rather than a wisdom-based one. Therefore, defining the theoretical aspects of wisdom and its roles in auditing would be a significant theoretical contribution to the auditing literature.
- Practical contributions: This study is able to help both auditors and auditing firms to develop educational and training schedules. In so doing, people in an auditing firm can understand more about their decision-making process and view it as an integral approach to resolving complicated audit situations.
- Social values: As a service to society, auditing firms improve and ensure the truthfulness and fairness of the financial information of their client companies. In projects with time limits and the need to analyze very raw data, auditing firms must co-operate with the management of the client company to assure that they release to society financial information of the highest reliability.

1.5 Working Terms

Audit service: The terms *audit* or *audit service* is used to mention the external audit service throughout the dissertation.

Phronesis: This term means practical wisdom that is action-oriented to pursue the common goodness. *Phronetic* is used as an adjective form of phronesis.

Praxis: Praxis is to take actions on the basis of *high morality* and *prudence.* It refers to socially responsible, right conduct, and morally committed.

1.6 Organization of the Study

This dissertation is divided by seven chapters. Chapter 1 introduces wisdom and audit service, and defines the research problem of the study. Chapter 2 presents the major and relevant literature of the research. Chapter 3 describes the adoption of research methodology. In Chapter 4 and 5, the study presents the interpretation of qualitative data and statistical tests. Chapter 6 discusses theoretical implications and proposes the substantive theory from the empirical findings. Finally, Chapter 7 concludes the study.

- Chapter 1 explains the research problem and research objectives of the study. Next, the research originality and significance is provided.
- Chapter 2 provides a literature review that includes literature of wisdom, judgment decision making, and knowledge management in auditing. In auditing, judgment decision making and knowledge management literature are provided to identify the need for wisdom research in auditing.
- Chapter 3 introduces the methodology of the study. Grounded theory, research design, and survey instrument are presented.
- Chapter 4 focuses on the interpretation of the qualitative data by grounded theory. The coding process is also presented to explain how data was collected and analyzed.
- Chapter 5 explains and interprets statistical analyses of the survey instrument.
- Chapter 6 discusses the theoretical implications of both qualitative and quantitative research, thereby proposing a substantive theory from the empirical findings. A conceptual framework for wisdom in auditing is introduced.
- Chapter 7 explains practical and academic implications of the study. Finally, the study presents research limitations, and suggests future directions for research.

Chapter 2 - Literature Review

2.1 Introduction

This chapter presents four major contents. Firstly, the literature of wisdom is presented from three perspectives of philosophy, psychology, and management. Then, it is followed by a review of major research lenses on judgment-decision making in auditing literature. Next, a review of knowledge management in auditing is discussed, thereby showing the need for wisdom research in auditing profession. Finally, a summary of this chapter is given.

2.2 Wisdom

2.2.1 Definition of Wisdom

A starting definition of wisdom, as stated by Webster (1961), is "the faculty of making the best use of knowledge, experience, and understanding by exercising good judgment". To this basic definition, it is stressed the key components of wisdom include judgment, accumulation of knowledge and experience. First, according to this basic definition, the core of the wisdom concept is the impression of judgment that incorporates in decision-making and action. Second, prerequisite to have wisdom is the accumulation of knowledge, experience, and understanding.

Based on the definition of Webster, Bierly further defines wisdom as "as the ability to best use knowledge for establishing and achieving desired goals and learning about wisdom as the process of discerning judgments and action based on knowledge." (Bierly, et al., 2000). In this definition, wisdom is an action-oriented construct that involves making the best decisions and the implementation of those decisions. To explain for the concept, Bierly describes a hierarchical model beginning with data and moving to wisdom in the Figure 2-1.

In management, practical wisdom is defined as "*phronesis*" that stems from the suggestion of the philosopher Aristotle (Aristotle, 1984). For example, Nonaka and Toyama (Nonaka and Toyama, 2007) state that distributed practical wisdom (or phronesis) emerges from the practice to pursue the common goodness. Specifically, practical wisdom (Nonaka and Takeuchi, 2011) is defined as "experiential knowledge" for ethical and sound judgments. These studies assert that knowledge, in a specific and dynamic context, can be created and refined to become wisdom (Nonaka and Toyama, 2007).

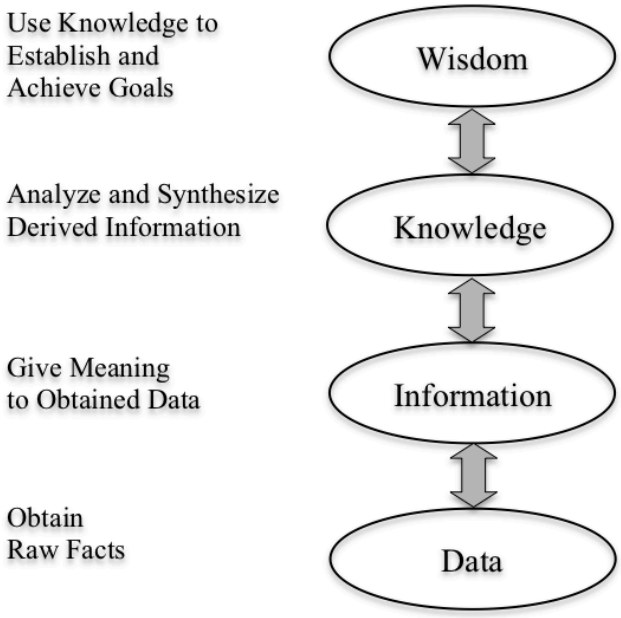

Figure 2-1: Data, Information, Knowledge, and Wisdom
(Source: Bierly et al., 2000)

2.2.2 Research Perspectives of Wisdom

According to Rowley and Slack (2009, p. 8), wisdom is described as a *polysemantic*[1] conception that may carry out different meanings in altered contexts. The following subsections verifies different research perspectives of wisdom.

2.2.2.1 Wisdom in Philosophy

Wisdom concept was philosophically established by ancient philosophers, e.g.: Socrates and Aristotle. Recently, Eastern approaches have been revealed (Case, 2013; Yang, 2011). The Eastern perspectives explain wisdom as having a quality in connection to knowledge and judgment. In Western practice, wisdom is categorized into: sophia and phronesis. In which, *Sophia* mentions theoretical aspects and *Phronesis* refers to action-oriented (Aristotle, 2009). In both Eastern and Western approaches, wisdom aims to attain a good life for everyone (Yang, 2011).

Aristotle identifies three states of wisdom: episteme (scientific knowledge), sophia (philosophic wisdom), and phronesis (prudence, or practical wisdom) (Aristotle, 2009).

- Episteme is described as "scientific knowledge" (Nonaka and Takeuchi, 2011, p. 60). Episteme mentions the scientific point of view that people may understand of things and

[1] Rowley and Slack (2009) conducted an exploratory research on the meanings associated with the concept of wisdom. They proposed that wisdom, like information, is a polysemantic concept, taking slightly different meanings in different contexts and applications.

know the principles of behaviors (Robinson, 1990).

- Sophia is scientific knowledge or theoretical wisdom. Sophia is the knowledge of what something factually is (Kleimann, 2013).
- Phronesis is the capacity of a person to direct their actions with respect to human goods. It is action-based practical wisdom that concerned with practice (Aristotle, 2009).

	Theoretical Wisdom	**Practical Wisdom**
In Greek word	Sophia (Episteme and Nous)	Phronesis or prudence
Logical Reasoning	Theoretical reasoning	Practical reasoning
Definition	The combination of scientific knowledge & intellect understanding	The capacity of a person to direct action
Characteristics	Eternal forms & relies on understanding what something factually is	Action-based entity & is concerned with practice

Table 2-1: Wisdom in Theoretical and Practical Perspective

2.2.2.2 Wisdom in Psychology

With the emergence of psychology as a field of study separate from philosophy, the studies of wisdom were aroused extensively in psychology. The psychological studies have conceptualized wisdom in different ways and produced a significant number of findings about the antecedents, correlates, and consequences of wisdom.

Early studies explained wisdom as an optimal stage of human development (Erikson, 1959, 1963, 1993); related wisdom to mental health and authenticity (Maslow, 1968), moral reasoning (Kohlberg, 1973); and associated wisdom with finding a meaning in life. Current research on wisdom emphasizes the relation of wisdom and positive aspects of life, and relates wisdom with human attributes such as intelligence, creativity, virtue, and practical thinking (Karelitz, et al., 2010).

There were two main approaches in psychological research of wisdom:

Implicit studies aimed to identify the perceived perception of wisdom concept and to examine the main dimensions of wisdom (Clayton and Birren, 1980; Staudinger, 2008) by listing or rating the characteristics related to wisdom.

Explicit studies in psychology refer to behavioral manifestations[2] and expressions of wisdom explained by Baltes and Staudinger (2000). These research aimed at explaining what

[2] Manifestation: The demonstration or a showing of a theory or an idea.

wisdom is, how it is manifested in our lives, and the wisdom of measuring (Sternberg, 1985, 1986).

Most researchers base their theories on models of human-developmental psychological constructs. In the constructs, wisdom is commonly seen as an advanced development of cognitive and affective aspects of one's personality. Some theories suggest that wisdom can also be understood as developing from an evolutionary perspective. Some theories characterize wisdom as the development of expertise in life matters, whereas others emphasize various kinds of balance needed to be wise (Lerner, 2010).

Two of the most prominent explicit theories are Berlin Paradigm and Sternberg's Balance Theory.

- Berlin Wisdom Paradigm is developed considerably in accordance with studies by Baltes on wisdom (Baltes and Kunzmann, 2003; Baltes, 2004). The Berlin's Wisdom Paradigm defined wisdom as "expert knowledge". This knowledge may be evaluated by the following criteria: factual knowledge, procedural knowledge, life-span contextualism, relativism, and uncertainty (Baltes and Staudinger, 1993).
- In the Balance Theory, Sternberg (2004) describes wisdom in relation to the usage of intelligence toward a common goodness. The balance theory proposes that the common goodness can be achieved through a balance of interests relating to:

+ (1) intra-personal,
+ (2) inter-personal, and
+ (3) extra-personal.

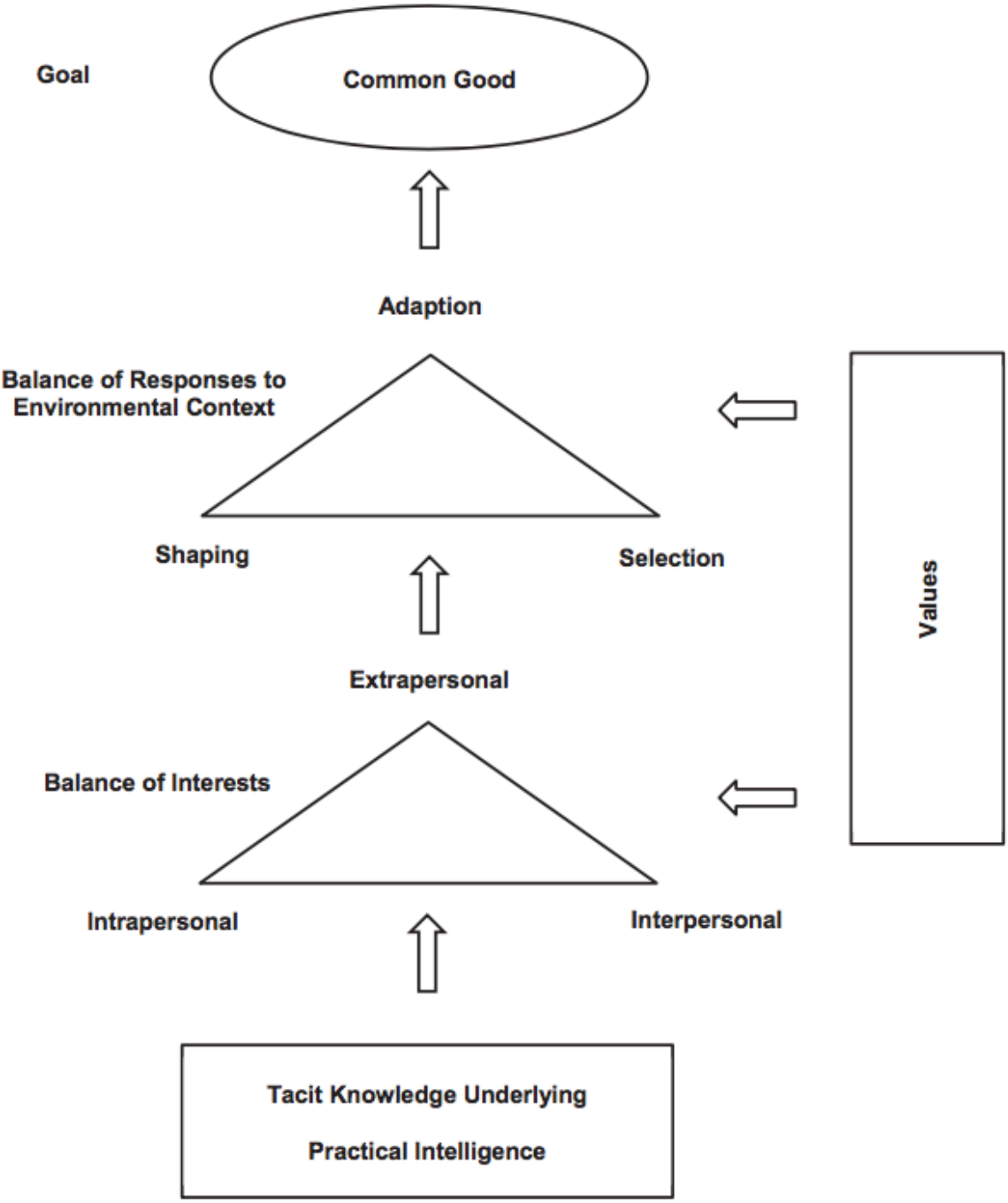

Figure 2-2: Wisdom ‘s Balance Theory
(Sternberg, 1998)

2.2.2.3 Wisdom in Management

In organizational and managerial research, wisdom is still a new concept but it is increasingly attracting attention of many scholars (Bierly and Kolodinsky, 2007; Spiller, 2011; Intezari and Pauleen, 2012; Rooney et al. 2010, 2013a, 2013b). Wisdom in management is considered to be relevant to rationality and non-rationality (Rooney et al.,

2010). The rationality involves in knowledge, cognitive ability, and reasoning capacity. In the meanwhile, non-rationality relates to personal emotions, feeling, and intuitive ability.

In management, the wisdom theory of Social Practice Wisdom (Rooney et al., 2010) is popularly discussed. In the Social Practice Wisdom theory, Rooney and his co-authors (2010, p. xi) argued that wisdom is able to lead "good judgment, good decisions, and good actions". Therefore, wisdom becomes a key management resource in an uncertain and complex environment.

The above different perspectives in the literature provide a diversity of opinions for research in wisdom. This diversity of research perspectives carries out challenges to the conceptualizing of wisdom by taking account of all the elements.

In the following sections, the literature of judgment decision making and knowledge management in auditing are discussed.

2.3 Professional Judgment and Judgment-Decision Making Research in Auditing

2.3.1 Professional Judgment

The professional and academic literature in auditing has recognized the importance and pervasiveness of judgment in auditing. The result of an audit is an opinion for which an auditor makes several subjective judgments in each part of the audit process to form the opinion. Auditor integrates professional judgments into an overall opinion as to the fairness of financial statements (Vaassen, 1994).

Why is professional judgment important to auditors?

Auditor is a practitioner of the professional judgment. Because if the applicable standards, existing regulations and codes do not impose a clear path for the decision process, the auditors have to use their professional judgment based on the accumulated knowledge and experience and on their own qualities. The purpose of professionals is to act in the virtues of the professional judgment to solve the particular issues, not stated in the professional standards.

AICPA (1955) stated "judgment is the most important factor in the making of any audit, but in many situations it is practically impossible to write out in specific language how the auditor applies judgment." Hence, the professional literature of auditing frequently emphasized the importance of professional judgment and focused on the process of how to carry out audit judgment. Audit researchers concentrate on figure out a conceptual framework for studying and evaluating auditor judgment under uncertainty.

The ISA 200 recognizes the need to exercise professional judgment during the audit. It states that "professional judgment is essential to the proper conduct of the audit" (IAASB, 2010, ISA 200), for example, in making decisions regarding materiality, the evaluation of management's judgments, and the drawing of conclusions. In fact, professional judgment will be used in almost all key decisions regarding the conduct of the audit.

What is professional judgment?

The exercise of judgment plays an important part in the practice of auditing (Dennis, 2015, p.131). In order to find out a comprehensive definition, some progress has been made in analyzing and describing judgment. The Canadian Institute of Chartered Accountants (CICA) has produced reports on judgment in financial reporting (CICA, 1988) and in auditing (CICA, 1995). At first, the CICA defines judgment as "the process of making a choice, a decision, leading to action" (CICA, 1988, p.4). Then, they define *professional judgment in auditing* as "the application of relevant knowledge and experience, within the context provided by auditing, accounting and ethical standards, and Rules of Professional Conduct, in reaching decisions where a choice must be made between alternative possible courses of action" (CICA, 1995, p.5). There is an important difference between the two definitions that relates to "the context provided". The second definition provides a more comprehensive explanation since it indicates that auditors may be faced with different types of judgment situations through "alternative possible courses of action".

Then, International Standards of Auditing (ISA) explains a similar definition of professional judgment in the auditing context as "the application of relevant training, knowledge and experience, within the context provided by auditing, accounting and ethical standards, in making informed decisions about the courses of action that are appropriate in the circumstances of the audit engagement." (IAASB, 2010, ISA 200)

Contexts to use professional judgment by auditors?

According to Stefan-Duicu (2015) and his co-author, professional judgment is a result the competent application of the accounting principles and it is necessary in auditing process, especially in the decisional process that implies these situations.

- At first, it is the evaluation of the audit risk and settlement of the materiality threshold to identify significant misstatements. For example, the inappropriate description of the accounting policies that can mislead a user of the financial statement ISA 320; the overstatement of assets by not properly recognize and record allowances and provisions, and so on.
- Secondly, they are the conditions related to nature, time and duration of the audit procedures used in order to comply with the provisions of the international standards and in order to collect audit evidence (IAASB, 2010, ISA 200).

The auditor carries, based on his professional judgment, a series of procedures needed to collect the audit evidence.

2.3.2 Major Research Lenses on Judgment-Decision Making in Auditing

Here, the main viewpoint is that judgment decision-making is the most important factor in the implementation of any audit (AICPA, 1955). The review focuses on the literature of audit judgment decision-making (JDM) and provides a comprehensive overview of dominant research paradigms on JDM.

JDM is a subfield of behavioral accounting research that has been concerned with the behavior of accountants and auditors themselves since the 1960s (Ashton, 2010). The aims of this JDM research has involved evaluating judgment quality, describing how judgments are made, determining impact factors of judgments, developing cognitive theories of judgment processes, and improving auditor judgments (Libby, 1981; Trotman, 1996; 1998; Trotman et al., 2011).

Prior to the 1970s, there was little research on audit judgments. However, JDM research has been an important research paradigm during the last four decades. The following sub-sections explain major lenses of JDM research from the 1970s to the 2010s.

2.3.2.1 Policy Capturing Research[3]

The Brunswik Lens Model (Ashton, 1974; Libby, 1975) was widely used in the early 1970s to examine judgments by auditors based on a set of environmental pieces of information. Human judgment occurs in a world of considerable environmental uncertainty, according to this model, in which events are probabilistically related to sets of information. We can model the relationship between cues (e.g., ratios) by using this approach and objects of interest (e.g., company failures), and/or judgments by a person (whether a company would fail or not) (Ashton, 2010; Trotman, 1996).

For example, Ashton (1974) argued that no systematic research on audit judgment had been carried out despite the importance of professional judgment. Ashton published an experimental study that focused on the evaluation of auditors in internal control systems. Further, Libby (1975) studied judgment research in financial accounting and conducted an experiment to measure the prediction achievement of accounting ratios. Then, Joyce (1976) examined the nature of expert judgments on audit program planning and found significant differences in auditors in the way they used information to make decisions about the amount of auditing to perform.

Ashton (1974) and Joyce (1976) are examples of the use of the policy capturing approach, which became a dominant research paradigm in auditing in the 1970s. These studies focused on probabilistic assessments by using various statistical methods. However, this approach did not explain the actual mode of processing, such as relationships between inputs and outputs.

2.3.2.2 Human Information Processing[4]

The second paradigm considers auditing as human information processing (HIP). This paradigm was established in the 1980s, which was an extremely exciting time for JDM research. HIP was related to studies that examined the effects of sourcing, selecting, and

[3] The material on policy capturing research in auditing heavily relies on previous literature review in the 1970s made by Ken Trotman (2011).

[4] The material on hum information processing in auditing heavily relies on previous literature review in the 1980s and 1990s made by Ken Trotman (2011).

processing of information (Joyce and Biddle, 1981; Libby, 1981; Libby and Lewis, 1982). For example, Joyce and Biddle (1981) tested the effects of source reliability on auditor judgments.

In reality, auditing tasks involve the need to search for information due to a lack of reliable data. Therefore, research has been conducted on information searching such as selection of evidence from a wide range of potential evidence. For instance, Biggs and Mock (1983) investigated the acquisition and use of information for an internal control system by using verbal protocol analysis. Their research was considered as a multi-method investigation of auditor information-processing behavior since it was aimed at providing detailed evidence of information-processing and choice behavior.

Brown and Solomon (1988) used contextual and cognitive factors to develop and reveal a conceptual framework of auditor's JDM as information processing in auditing. Information processing is contextually based on the substantive content of specific situations and tasks in which individuals make decisions and judgments according to this framework. This research had significant implications for evaluating how and how well auditors processed information, but it discussed theoretical issues rather than a specific process model. Brown and Solomon (1991) identified that the use of information processing depended on the auditor learning of requisite domain-specific knowledge. However, they did not explain how knowledge was created and involved in auditing processes.

2.3.2.3 Research on Experience, Expertise and Memory[5]

Research on experience, expertise, and memory was discussed in the 1980s and 1990s. It is believed that better understanding of experience, knowledge and memory of an expert auditor is possible to develop training and improve the performance of novice auditors. Therefore, experience, expertise, and memory in auditing became one of predominant topics.

From the early 1980s, it is recognized that the relationship between experience and tasks is very important because auditors retrieve information of their experience from long-term memory (Weber, 1980; Libby, 1981, 1983). One of the first important contributions was the identification of "ability, knowledge, environment, and motivation" as the determinants of judgment performance (Einhorn and Hogarth, 1981). Subsequently, research highlighted knowledge, experience, and memory issues (Libby, 1983).

In the mid-1980s, an *expertise paradigm* was proposed by Frederick and Libby (1986). This paradigm was presented with three guidelines for showing the effects of knowledge to auditor individuals with different experiences. The three guidelines included (1) hypotheses about the effects of specific knowledge elements, (2) a demonstration of a knowledge difference for constructing experiments, and (3) the existence of a knowledge effect to individuals with different experiences. The *expertise paradigm* led to considerations of

[5] The material on hum information processing in auditing heavily relies on previous literature review in the 1980s and 1990s made by Ken Trotman (2011).

cognitive processes through which knowledge is brought in task decisions, the role of task-specific knowledge to auditors, and interest in the usage of long-term memory (Trotman, 2011).

Following the *expertise paradigm,* research on experience, expertise, and memory was continued into the early 1990s. For instances, Bonner (1990) examined the effects of experience, specifically the role of task-specific knowledge, in the selection and weighting of cues (pieces of information). Libby and Frederick (1990) investigated the relationship between experience and the ability to explain audit findings. This research suggested that more experienced auditors generate better explanations of audit findings. Because the frequency perceptions of more experienced auditors are more accurate, experienced auditors can reach an appropriate conclusion more quickly than their less experienced colleagues. Frederick (1991) explained the characteristics of experienced and in-experienced auditors in their retrieval of internal controls from memory. Frederick's research aimed to understand the nature of expertise and provide a comprehensive understanding about the cognitive skills of expert and novice auditors.

In the mid-1990s, the relationship between ability, knowledge, experience, and performance was presented by Libby (1995) through a developed model on expertise. Libby constructed a model of the role of knowledge in audit judgment performance and called it as "the antecedents and consequences of knowledge" model. In this model, Libby defined four knowledge-related determinants of audit judgment performance including *experiences* (task-related encounters that provide opportunities for learning), *knowledge* (information stored in memory), *abilities* (capacity to complete information-processing tasks that contribute to audit problem solving), and *performance* (correspondence of the judgment to a criterion). Then, he discussed the links between the determinants in the audit environment. Libby (1995) concluded that it is important to specify the knowledge needed and cognitive processes involved in performing specific audit tasks.

2.3.2.4 Research on Knowledge Related Process[6]

JDM has elicited several concerns in the last few years about how knowledge might affect the judgment approach and help in making better decisions. If a great deal of interest was centered on the differences in judgments between auditors and novice students in the 1980s, later studies attempted to show how knowledge differences affected the judgments of auditors. These studies were related to investigations into the roles of knowledge types and the transfer process of knowledge.

The knowledge types that were discussed included technical knowledge and specialized industry knowledge. For example, Kennedy and Peecher (1997) investigated how the

[6] The material on hum information processing in auditing heavily relies on previous literature review in the 1980s and 1990s made by Ken Trotman (2011).

technical knowledge of auditors was judged by their reviewers. This research revealed that auditors are overconfident in both their own assessments and subordinates' assessments of technical knowledge. These overestimates in knowledge assessment increased the knowledge gap between supervisors and subordinates.

An auditing engagement requires industry-specific business knowledge to identify potential problems and communicate with clients according to Danos et al. (1989). No audits can be completed without such knowledge. Solomon et al. (1999) focused on the specialized industry knowledge of auditors by using experimental investigations to compare the knowledge of industry specialists with that of non-specialists. They defined industry specialists as auditors who were designated by their firms and whose training and practice experience were largely in a particular industry. They found that focused training and concentrated experiences have a greater effect on non-error knowledge than on error knowledge of financial statements. Although their experiments had some limitations, their research made a substantive contribution in that specialists have more accurate non-error frequency knowledge. In other words, research on the types of knowledge indicates the effects of knowledge on JDM in auditing and shows that knowledge has a positive effect on JDM. These findings are supported by Bonner's statement that individual auditors not only need a substantial amount of knowledge, but also different types of knowledge to attain high quality JDM (Bonner, 2008, p. 56).

The knowledge sharing process has also been attracting a great deal of attention from scholars. Vera-Muñoz et al. (2006) examined a range of factors affecting the knowledge sharing process of auditors and suggested that those factors make it possible to enhance the effectiveness, efficiency, and integrity of auditing processes. Joe and Vandervelde (2007) investigated the cognitive effects of auditors on the transfer of knowledge gained from the performance of non-auditing tasks to auditing tasks.

The relevance of knowledge to auditing judgments and decision making has attracted the attention of empirical and academic researchers in recent years following the principles-based accounting regime. In a report on professional judgments, the eighth International Conference on Autonomic and Autonomous Systems (ICAS, 2012) discussed the importance of knowledge in professional judgments, thereby proving guidance to auditors in the principles-based accounting standards system. After this, under the emerging trend of big data, Brown-Liburd et al. (2015) placed emphasis on the development of knowledge structures and mental models to effectively evaluate more complex data. Nguyen and Kohda (2017) explained the importance of knowledge and described knowledge as a crucial determinant in audit decision making.

In summary, the studies on knowledge-related matters with regard to the previous research have become an emerging trend in the research domain. These studies have been aimed at improving the quality of decisions made through the enhancement of auditors' knowledge.

2.3.2.5 Development of Major Research Lenses on JDM in Auditing

Figure 2-3 shows four major paradigms to provide a comprehensive overview of dominant research lenses on JDM. The *first* paradigm focuses on statistical experiments by using a *policy capturing paradigm*. The *second* perspective views auditing as a HIP, thereby enabling the effects of sourcing, selecting, and processing of information to be examined. The third concentrates on the relationships between experience, knowledge, and memory through expertise paradigms. After this, researchers called for studies on knowledge types and knowledge transfer processes.

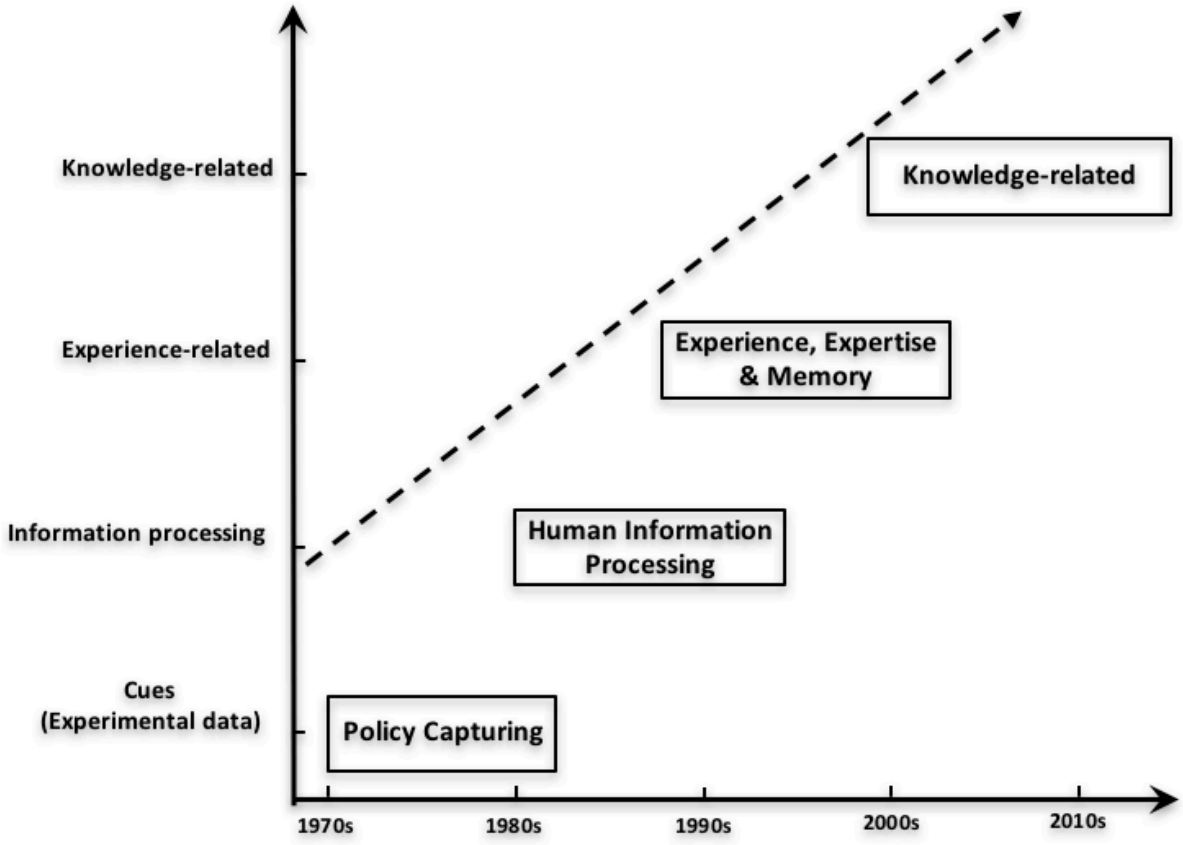

Figure 2-3: Major Research Lenses on Judgment-Decision Making in Auditing

Despite recognition of the importance of knowledge in auditing, there have been few empirical studies that have explained how knowledge is created during an auditing process. It is clear that we need a new research approach that focuses on knowledge processes in auditing. This study proposes a new approach to explaining the auditing process to address this gap by underlining the critical role of knowledge.

2.4 Knowledge Management Research in Auditing

In auditing research, Nguyen et al. (2105) proposed CAS (***C****ollecting-****A****nalyzing-****S****ynthesizing*) model to explain on how knowledge-related processes are conducted in an audit engagement. In the model, an audit consists of three phases of collecting data, analyzing data thereby turning it into information, and synthesizing information into knowledge. Consequently, the model visualizes the auditing process as a spiral with many iterative CAS processes with various engagements over many years.

In auditing service, the data consists of structured records of business activities, internal control systems, and transactions collected by separate auditors. Information is the result of analyzing the collected data. Knowledge is the synthesis of the analyzed information; it is a wide range of useful and valuable systems of information that are connected, and it leads to decisions and actions. The three phases of CAS model represent the transformative processes of data, information, and knowledge under the instruction of wisdom in auditing. A brief summary of the concepts explained by CAS model is presented in Table 2-2.

Concept	**Definitions of CAS model**	**Examples**
Data	Audit materials collected by audit *individuals* according to standards and professional judgments on empirical contexts.	Structured records of business activities, internal control systems, and transactions
Information	Results of analyzing the data collected by the audit *teams*, i.e., findings to support formation of audit opinions.	Accounting errors, unrecorded transactions, incorrect calculations, or inconsistent applications of a policy
Knowledge	A wide range of useful and valuable systems of information created from the synthesis of the analyzed information at the *organizational* level.	The result of an audit is presented in the form of audit reports and a management letter to the client company.
Wisdom	A high level of auditor knowledge & professional judgment attained through extensive experience.	

Table 2-2: Summary of Concepts in CAS Model
(Nguyen et al., 2015)

Nguyen et al. (2015) revealed that KM in auditing includes three phases of collecting data, analyzing data thereby turning them into information, and synthesizing information into knowledge. Nguyen (2015) proposed CAS model including three phases: Collecting (C), Analzying (A), and Synthesizing (S) to explain the KM process (Figure 2-4).

The first phase - *collecting* - aims to obtain raw data or unanalyzed client's materials. Data, which are collected, include both general and detailed one. Normally, this phase is carried out by audit assistants under the instructions and supervision of audit seniors. Each member of the audit team is responsible for obtaining some kinds of data and information and performs their allocated tasks *individually*. However, their collected data are documented and shared with other members as a team's dataset for analysis.

The second phase - *analyzing* - comprises of many audit procedures to process the collected data. In this phase, the collected data are processed to create appropriate and sufficient audit evidences. Normally, information is processed through the two actions of designing and testing. The responsible (or in-charged) audit senior designs an audit strategy to indicate all necessary audit procedures or tests for each account or transaction. Then, audit assistants are allocated to execute the designed procedures to process information. Usually, audit assistants have to collaborate together in order to execute audit procedures sufficiently and completely; therefore, the processed information is often investigated at the *group level*. The processed information can be accounting errors, unrecorded transactions, incorrect calculations of some values, an inconsistent application of a policy, and so on. They are extremely important evidences to support the final audit opinions.

The third phase - *synthesizing* - involves in reporting and formulating the final audit opinion on financial statements. Knowledge creation is the last phase of an audit process when partners and managers – top expertise auditors – review all previous steps to decide what kinds of the audit opinion they will present. During the phase, all discovered errors or audit issues will be resolved by the clients according to auditor's suggestions. Then, the in-charged audit partner will decide what types of the audit opinion to express after a careful review of all procedures. In this phase, the audit opinion of financial statements will be reviewed by the other independent partners and managers to ensure that the audit opinion is appropriate. The last phase involves an organizational review rather a group one.

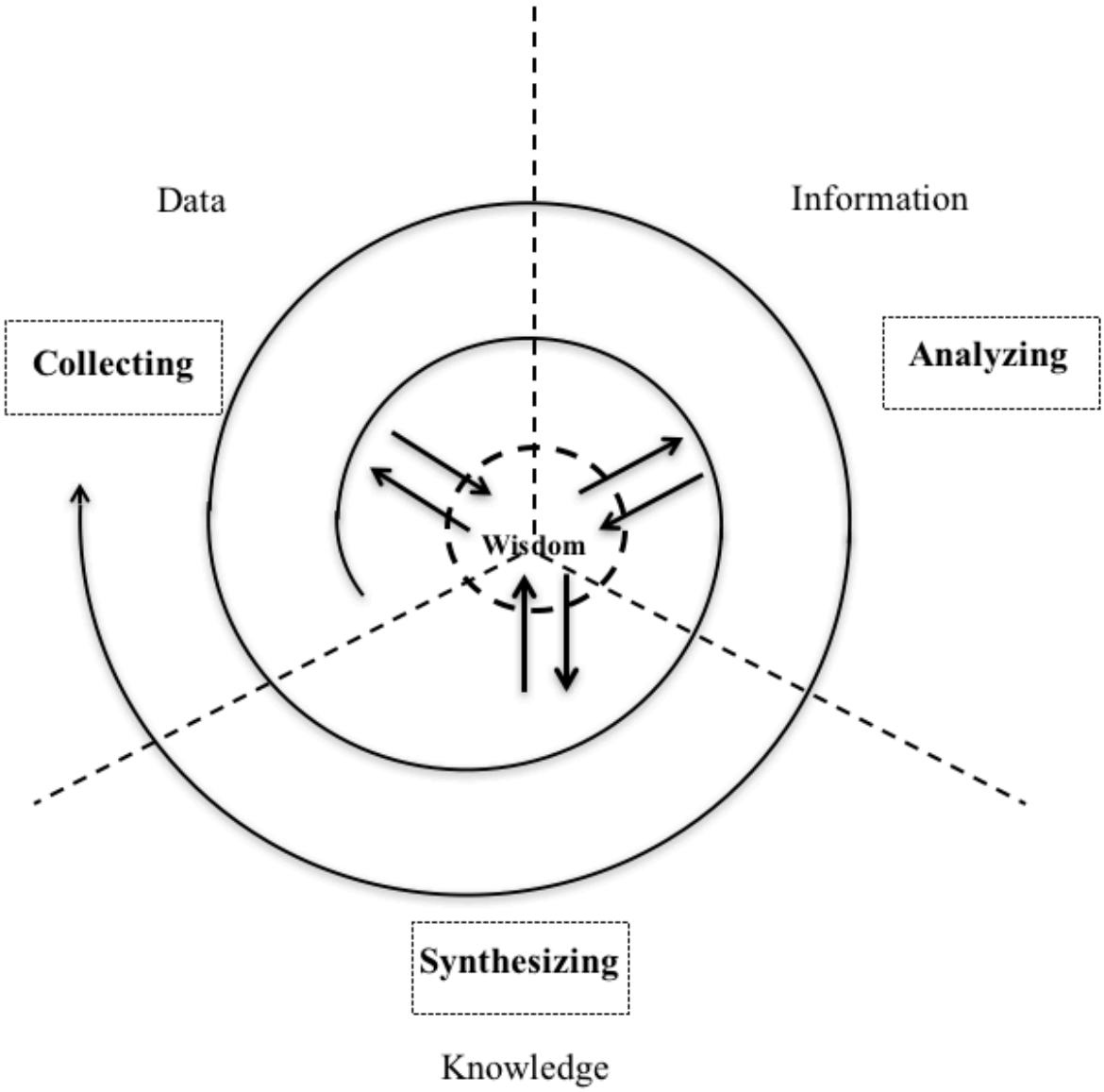

Figure 2-4: CAS Model of the Knowledge Management Process in Auditing (Nguyen et al., 2015)

The CAS model emphasizes that wisdom is crucial because it is the cornerstone upon which to conduct an audit and it helps auditors to perform their tasks appropriately. Wisdom (Nguyen et al., 2015) is defined as "a high level of auditing knowledge and the capacity to make professional judgment." Wisdom has a two-way interaction with the three CAS phases. First, wisdom instructs auditors as to how to conduct a high-quality audit. Second, wisdom is accumulated through the practical implementation of the three phases.

2.5 The Need for Wisdom Research in the Auditing Profession

There is an argument that knowledge may not be sufficient when dealing with emerging and unforeseen situations since knowledge tends to be past-oriented, while emerging situations are future-oriented (Intezari and Pauleen, 2012). In a rapidly changing environment, although organizations focus on improving knowledge in response to changes, our knowledge yesterday could be irrelevant or insufficient tomorrow. It is also arguable that wisdom is required in current organizations because it provides meanings on specific and subjective contexts (Rowley and Gibbs, 2008).

An auditing service is an unpredictable working environment as mentioned above. It is a complex domain that often puts intense pressure on auditors and their firms. For example, in a turbulent and uncertain business environment, it is a challenging task for auditors to make accurate and reliable judgments of practical situations.

In order to cope with rapid changes in the environment, the viewpoint of auditing research has evolved from information processing (Brown and Solomon, 1988) and knowledge management (Nguyen et al., 2015) to wisdom management (Figure 2-5).

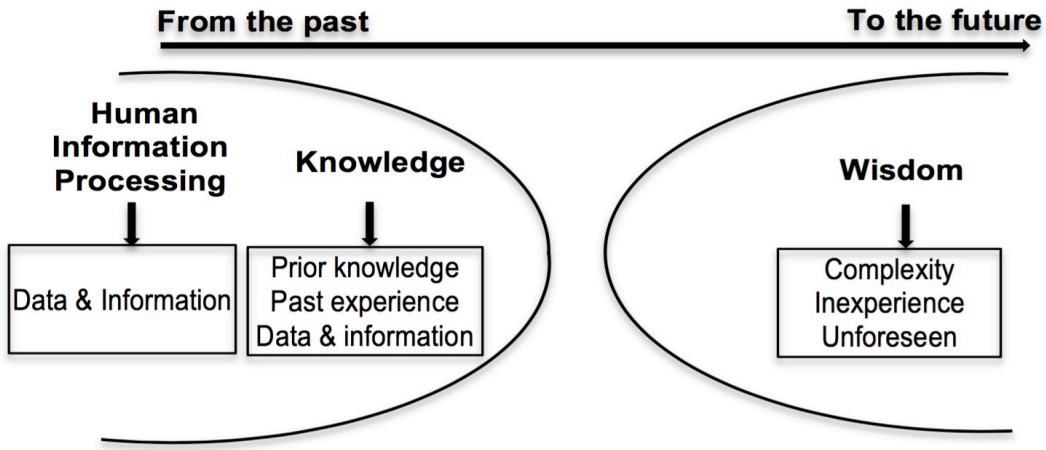

Figure 2-5: Research Perspectives in Auditing

2.6 Summary

This chapter presents four major sections: wisdom, JDM, and knowledge management in auditing. The first section provided a literature review of wisdom concept and its major research perspectives. The second one explained the literature review of judgment decision making in auditing. Research in auditing examined that audit process is a kind of decision-making process based on professional judgment of auditors. The study provided a comprehensive overview of dominant research lenses on JDM. The third section discussed the research of knowledge management in auditing, thereby indicating a need for a new research approach that focuses on wisdom in auditing.

Chapter 3 - Research Methodology

3.1 Introduction

This chapter describes the researcher's viewpoint, and explains the adoption of the research methodology, research design in accordance with the research viewpoint. Firstly, the researcher's worldview is described. The next sections introduce the research methodology and discuss on ground theory which was the chosen method to conduct this research. Then, the research design is presented. In the last section, we explain the survey instrument and reasons for implementing of the survey.

3.2 Research Methodology

Methodology presents the thinking way for studying of social phenomena (Corbin and Strauss, 2015, p. 17). The adoption of methodology provides guidance to choose research methods, that are techniques and procedures for gathering and analyzing data (Corbin and Strauss, 2015, p. 3). In answering the major research question: ***"What are the concept of wisdom and its roles in auditing?"***, the research adopted a phronetic, inductive, and qualitative methodology by using naturalistic approach.

3.2.1 Phronesiology

Rooney (2013a) highlights the role of wisdom in contemporary society and called for organizational studies on this emerging topic. To address financial and environmental crises, he suggests an integral, wisdom-based research approach to organizational research, "*phronetic* methodology or *phronesiology*". Rooney (2013b) emphasized that since wisdom is able to deal with issues of lacking the integration of organizational areas, wisdom is crucial research topic in organizations. Furthermore, it possibly carries out attention for going beyond the short-term interests of stakeholderxs (Rooney, 2013b).

In accordance with the *phronesiology*, modern research aims at fostering practical wisdom for complex contexts. In order to address current financial and environmental crises, it is argued that organizational research must concentrate on enhancing practical wisdom, rather than increasing the volume of knowledge.

The organizational research depends on an integral approach to deal with the complex inter-relationship between organizations and a wide range of environmental aspects. In the framework, Rooney (2013a) emphasizes that it is necessary to integrate ontology (ways of being and becoming), axiology (theory of values and ethics), and epistemology (knowledge creation). According to Jacquette (2002), **ontology** investigates the fact, nature and modal status of being. Although traditional ontology assumes that things have a *fixed, true state of being,* some scholars argue that this traditional view of ontology of being should be replaced by ontology of becoming (Chia, 1996) to emphasize that empirical reality is always changing.

Epistemology is concerned with how to create knowledge and how to decide what counts as knowledge. **Axiology** deals with the nature of value and ethics.

This research aims to carry out both epistemic and phronesis values by adding new insights into auditing studies. Guided by *phronetic* methodology, we framed an integral approach by focusing on the ontological, epistemic, and axiological aspects of the complex inter-relationships in the auditing process.

3.2.2 Deductive and Inductive Approach

According to Thomas (2006, p. 238), induction is a systematic procedure that used in analyzing qualitative data and guided by evaluation objectives specifically. On contrary, deductive analysis refers to the analyses of data that set out to test whether data are consistent with prior assumptions, or theories constructed by an investigator. In practice, many evaluation projects use both inductive and deductive analysis.

The inductive approach is a common way in several types of qualitative data analyses, especially grounded theory (Corbin and Strauss, 2008). The inductive approach allows research findings to emerge from the frequent, dominant, or significant themes inherent in raw data. In deductive analyses, key themes are often obscured, reframed, or left invisible in order to test experimental hypotheses because of the preconceptions in the data collection and data analysis procedures (Thomas, 2006, p. 238).

	Deductive approach *("top-down" approach)*	**Inductive approach** *("bottom up" approach)*
Characteristics	+ Deductive reasoning works from a more general to a more specific theory. It is informally called as *top-down* approach. + The approach begins with thinking up an interested theory, or a pre-existing theory. The theory then is narrowed down into more specific hypotheses that can be tested. + This approach ultimately leads us to be able to test the hypotheses with specific data for confirming (denying) of the original theories.	+ Inductive reasoning works in another way, moving from specific observations to broader generalizations or theories. It can be called as *bottom-up* approach. + The inductive reasoning begins with specific observations and measures in order to detect patterns and regularities, formulate some tentative hypotheses that we can explore. + This approach finally leads us to develop some general conclusions or theories.
Advantages	Deductive reasoning is more narrow since it is concerned with testing or confirming hypotheses.	Inductive reasoning is more open-ended and exploratory, especially at the beginning.
Examples	*An experiment designed to test the effects of practice on the acquisitions of knowledge.*	*An exploratory research on accounting behaviors*

Table 3-1: Deductive and Inductive Research Approach
(Trochim, 2006)

3.2.3 Qualitative and Quantitative Research

Qualitative research is a strategy that emphasizes words rather than quantification in the collection and analysis of data. This research strategy is an inductivist and constructionist (Bryman and Bell, 2015, p. 392).

Quantitative research, on contrary, is prone to use the approach of positivist (Cooper and White, 2012). Positivist research, originated from natural sciences, uses deductive reasoning. Positivist researchers usually begin with a theoretical hypothesis, then test the hypotheses against practical evidence (Cavana et al., 2001).

There has been a growing interest in the application of a quantitative research – in the form of content analysis – to qualitative research (Bryman and Bell, 2015, p. 635). This form of research may have potential in business studies. This approach has many attractions since it means that more data of much greater depth can be used than can typically be gathered by

quantitative researchers. Moreover, it also allows hypotheses deriving from established theory to be tested (Bryman and Bell, 2015, p. 636).

Our research adopted a mixed application of a quantitative research to qualitative research to explore, interpret, develop, and test a theory grounded in empirical data.

3.2.4 Naturalistic Research Approach

Naturalistic approach is essentially an inductive approach and is best suited to gaining understanding of complex phenomena (Lye et al., 2006). This is an emergent perspective that views reality as subjective, ill-structured, complex, and socially constructed. The naturalistic approach is contrasted with traditional perspective in which reality is seen as objective and rational. This following provides a comparison between traditional scientific approach and emerging interpretive perspective:

	Traditional Approach *(Scientific)*	**Alternative Approach** *(Interpretive-Naturalistic)*
Reality	Objective, structured	Subjective, unstructured, and socially constructed
Focus	Better knowing and representing reality. For examples: Causal determination, prediction, generalization.	Understandings the meaning of individual's actions and those surroundings. For examples: Illustration, extrapolation.
Research approach	Reductionist – Theory driven	Interpretive – holistic
Research process	Linear	Non - Linear
Research purpose	Theory testing	Theory discovery
Analysis	Based on face value of data	Based on understanding gained by interpreting data

Table 3-2: Traditional and Alternative Approaches to Accounting Research (Lye et al., 2006)

Because traditional the "narrow rational models" often fails to give comprehensive explanations for human choice behavior or complex human phenomenon such decision making under ambiguity (Einhorn and Hogarrth, 1981), there is a growing appreciation for interpretive/naturalistic research methods in accounting research (Lye et al., 2006, p. 133). Naturalistic approach method suggests that decision making needs to be observed in its natural process rather than being appreciated in the way it is done. Therefore, in this studying

of wisdom in auditing, this interpretive or naturalistic is conducted to guide our research process.

In summary, given the about analyses, the adopted methodology is a qualitative, naturalistic and inductive that focuses on wisdom-based approach to organizational research, or phronetic methodology. In this view point, grounded theory is identified as methodology that efficiently reflects the main feature of the naturalistic and inductive approach.

The following section focuses on discussion about grounded theory. The section explains our arguments on the choosing of grounded theory and how it was conducted in this study.

3.3 Grounded Theory

Grounded theory (GT) is a form of *qualitative, naturalistic and inductive* research methodology developed by Glaser and Strauss (1967) for the purpose of constructing theories directly generated from social and empirical data. It allows for identification of concepts, the development of theoretical explanations, and offers new insights into a variety of phenomena. Due to the effectiveness in explaining the decision making processes and human behavior within their natural settings, GT is favor in many disciplines such as nursing, social, and organizational studies (Parker, 1994).

According to GT, a generated theory involves a research process with new insights and concepts. Afterward, categories are defined based on concepts and constantly compared with new data (Glaser and Strauss, 1967). GT is distinguished from other methodologies since new theory is directly stemmed from data (Goulding, 2002).

GT is viewed as a suitable method of this study because of the following reasons:

- GT aims to recognize, understand or explain behavior patterns. Grounded theory methodology provides a tried-and-true set of procedures for constructing theory from data (Corbin and Strauss, 2015). The procedures enable us to examine the wisdom-related processes from many different angles, thus developing comprehensive explanations. The procedures can be used to gain new insights of this emerging topic.
- GT, as an analysis tool, allows us to elucidate the concept of wisdom and its roles in auditing.

These following parts aim to explain the components and logic of GT, and the suitableness of GT to accounting research.

3.3.1 Grounded Theory Components

According to Glaser and Strauss (1967), GT has four components: theoretical sampling, constant comparison, theoretical sensitivity, and theoretical saturation. In the GT, these components are used in combination to develop new theory.

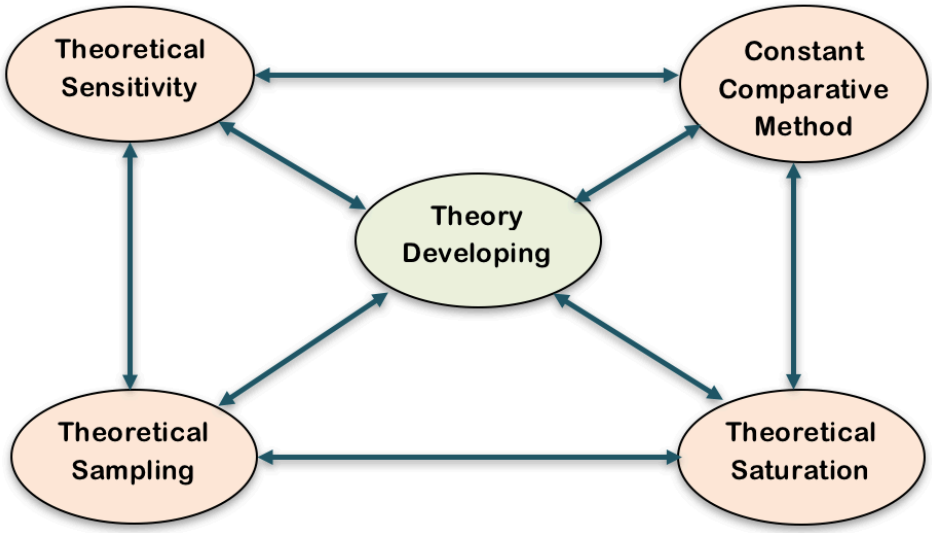

Figure 3-1: The Grounded Theory Components
(Oktay, 2012, p. 16)

Theoretical sensitivity mentions the ability of being analytic and capable to find out what is being studied. Theoretical sensitivity allows researchers to combine the emerged concepts from the coded data with some existing relevant concepts (Glaser and Strauss, 1967).

In order to formulate and conceptualize a theory, researchers must be theoretically sensitive and are able to involve with a minimum of predetermined ideas or hypotheses (Glaser, 1978). However, although the theoretical sensitivity depends on the familiarity with sociological concepts and theories, it is emphasized that the theoretical sensitivity based on personal and professional experience. On the other hand, theoretical sensitivity relates to "many years of thinking theoretical" (Glaser and Strauss, 1967).

Theoretical sampling relates to the process of collecting data for theory generation. According to Glaser and Strauss (1967, p. 45), the process of collecting data is managed by the emerging theory. Specifically, it is described that the analyst collects and analyses data conjointly, thereby deciding what data for collecting in the following steps for developing theory. These simultaneous processes are conducted to ensure the relevance of collected data.

Theoretical saturation means that "no additional data are being found whereby the sociologist can develop properties of the category" (Glaser and Strauss, 1967, p. 61). In GT methodology, the researcher continues the recursive process of collecting and analyzing data until a point of saturation is reached. Saturation is, no new concepts are emerging and the researcher is able to come to an end of sampling different groups of a category. When theoretical saturation is reached, the researcher is able to start generating the category's attributes.

Constant comparison is the basic method to create theory from empirical qualitative data. "Constant comparative method" refers to the applying of mutual coding and interpretation to

generate theory systematically. The aim of this applying is to generate a theory that is integrated, consistent, plausible, close to the data, and clear enough to be readily operationalized for testing in quantitative research" (Glaser and Strauss 1967, p. 103). In GT methodology, it requires the researchers to minimize their pre-conceptions and to be welcomed and open-minded for new theory.

3.3.2 The Logic of Grounded Theory

Grounded theory focuses on the creation of a theory that is directly grounded from the empirical data by using inductive approach. Grounded theory is a multistage process that begins with data collection and comes out with a generated theory. By using inductive logic, the developing theory is explored, expended, and tested (Oktay, 2012, p. 17).

The components work jointly through the multistage process. For example, first of all, the research aims to a research topic and begins to gather data while using his/her *theoretical sensitivity*. Next, the researcher applies his/her *constant comparative method* to analyze the collected data and to create developing concepts. Then, the *constant comparison* is used jointly with *theoretical sampling* until no new concepts are emerging, or *theoretical saturation* is reached. During this multistage process, *theoretical sampling* is applied to gather next data and verify the developed concepts.

3.3.3 Grounded Theory for Accounting Research

The application of GT is a current trend of accounting research. Many researchers call for further grounded theory studies in the field of management and accounting (Llewellyn, 2003; Locke, 2001). Many scholars, following this trend, attempt to demonstrate the potential application of the GT methodology to accounting research (Lye et al., 2006; von Alberti-Alhtaybat and Al-Htaybat, 2010).

GT represents a **suitable approach** for handling large amounts of non-standard data generated by qualitative research in accounting, for example: unstructured, semi-structured, or in-depth interviews, case studies, participant observations, or the observations of face-to-face interactions. It is valuable to understand about social construction of accounting (Lye et al., 2006, p. 148), particularly, where the studies involve in "*phenomena which are multi-faced and about which little is known; questions which involve dealing with social processes behind a phenomenon; questions which encompass a set of circumstances which cannot be explained in terms of existing theories; or questions which require investigating and working with organizational culture*." GT method is an extremely demanding research method because it probably lead to rich insights and excellent qualitative studies emerging in the accounting literature (Lye et al., 2006, p. 151).

Although the choice of methods for the accounting researcher has many complexities, GT approach is attractive guidance to provide for the new researcher more capacity in performing accounting research (Sutton et al., 2011). GT has potential to contribute at all levels of accounting research, and it can be added to the body of existing research methodologies in the field of accounting (von Alberti-Alhtaybat and Al-Htaybat, 2010). Therefore, the GT is

possibly adopted to provide various insights and plausible interpretations to complex circumstances comprising accounting phenomena.

It is emphasized that research should become theoretically stronger and the research results must be more understandable and reliable. In a domain as auditing, where existing theory may not always help us understand new phenomena, GT approach enables us to improve the theoretical foundation of the discipline, thereby strengthening the reliability and validity of the research.

3.3.4 The Adoption of Research Methodology and Methods

In conclusion, we adopted an inductive, interpretive and exploratory study by using GT method (Glaser & Strauss, 1967; Glaser, 1978, 1998). This adoption is found appropriate because these following reasons:

- Firstly, GT is used to develop new theories when there is very little knowledge of the phenomena (Goulding, 2002). It means that when the existing theories are unable to explain the research phenomenon, GT is considered as a potential method to expand the capacities of social researchers for generating new theories. In our research, although wisdom is crucial, it is still a very elusive phenomenon. In spite of the growing attention in organizational studies, little is known about the roles of wisdom and its applying mechanisms, either theoretically or empirically. Therefore, GT enable us to discover the wisdom-related processes and gain new insights of this emerging topic.
- Secondly, GT is demonstrated as a potential methodology to accounting and auditing research. Lye and her authors (2006, p. 148) stated that GT is a valuable research approach to accounting researchers in understanding the social construction of accounting. They emphasized that the GT method is an extremely demanding research methodology because it is able to lead to rich insights and excellent qualitative studies emerging in the accounting literature in the future (Lye et al., 2006, p. 151). In a reflective study, von Alberti-Alhtaybat and Al-Htaybat (2010) showed that the grounded theory has potential to contribute at all levels of accounting research.
- Finally, GT is an appropriate analytical tool for data interpretation. It represents a suitable approach for handling large amounts of non-standard data generated by qualitative research in accounting, especially for semi-structured or unstructured intensive interviews. GT is a multistage process that begins with data collection and comes out with a generated theory (Oktay, 2012, p. 17). In this multistage process, the components of GT are used conjointly and systematically up until a theory generated from the data. Hence, GT approach enables us to improve the theory foundation of the discipline, thereby strengthening the reliability and validity of the research.

Given the above analyses, GT methodology provides us suitable guidance to conduct an inductive and exploratory qualitative research of a complex phenomenon such as the relationships between wisdom and decision-making in auditing.

Reasons	Explanation
GT is the most suitable methodology for the wisdom studying.	GT is used to develop new theories when there is very little knowledge of the phenomena. Although wisdom is crucial, it is still a very elusive phenomenon, GT enable us to discover the wisdom-related processes and gain new insights of this emerging topic
GT is a potential methodology to accounting and auditing research.	GT is a valuable research approach to accounting researchers since it is able to lead to rich insights and excellent qualitative studies.
GT is an appropriate analytical tool for data interpretation.	GT is a suitable approach for handling large amounts of non-standard data generated in accounting. It is also a multistage process in which the components of GT are used conjointly and systematically up until a theory generated from the data.

Table 3-3: Why Grounded Theory?

3.4 Design of the Study

The innovative point of this research is showed in the adoption of grounded theory and the usage of quantitative instrument to verify the framework. To conduct the phronetic methodology, this research applies a mixed adoption between qualitative and quantitative with two phases.

- In the first phase, we conduct GT methodology to deeply to investigate the new insights of the wisdom phenomenon. The application of the GT methodology allows for identification of concepts, the development of theoretical explanations, and offers new insights into a variety of phenomena.
- In the second phase, after the findings of theoretical aspects as well as the building of proposed framework, we conducted quantitative survey to verify and justify our theoretical framework.

By using the mixed methods, the research aims to create a strong research argument for the discovery of the wisdom-based model. This is an innovative point of our research project.

3.4.1 Research Questions

To address the research tension on the role of wisdom in auditing, this research aims at finding the concept of wisdom and its mechanism in auditing. The major research question: **"What are the concept of wisdom and its roles in auditing?"**

The subsidiary research questions (SRQs) are following:

SRQ1: What is wisdom in your perspective? What are things can help you make sound/good decisions in auditing?

SRQ2: What are roles and components/determinants of wisdom in auditing?

SRQ3: How do determinants of wisdom impact to audit decision making and how do these determinants relate together?

3.4.2 Research Process

In the first stage of the research process, guided by the GT, we conducted a recursive process of literature reviewing, data collecting and analyzing. We reviewed relevant studies in both wisdom and auditing research. After getting a *primary set of interview questionnaires*, we performed and analyzed six interviews (the round 1). Findings from this stage provides us an improved *set of intensive questionnaires* for the following focused interviews (used in round 1, 2, and 3).

The research process was designed as the following figure:

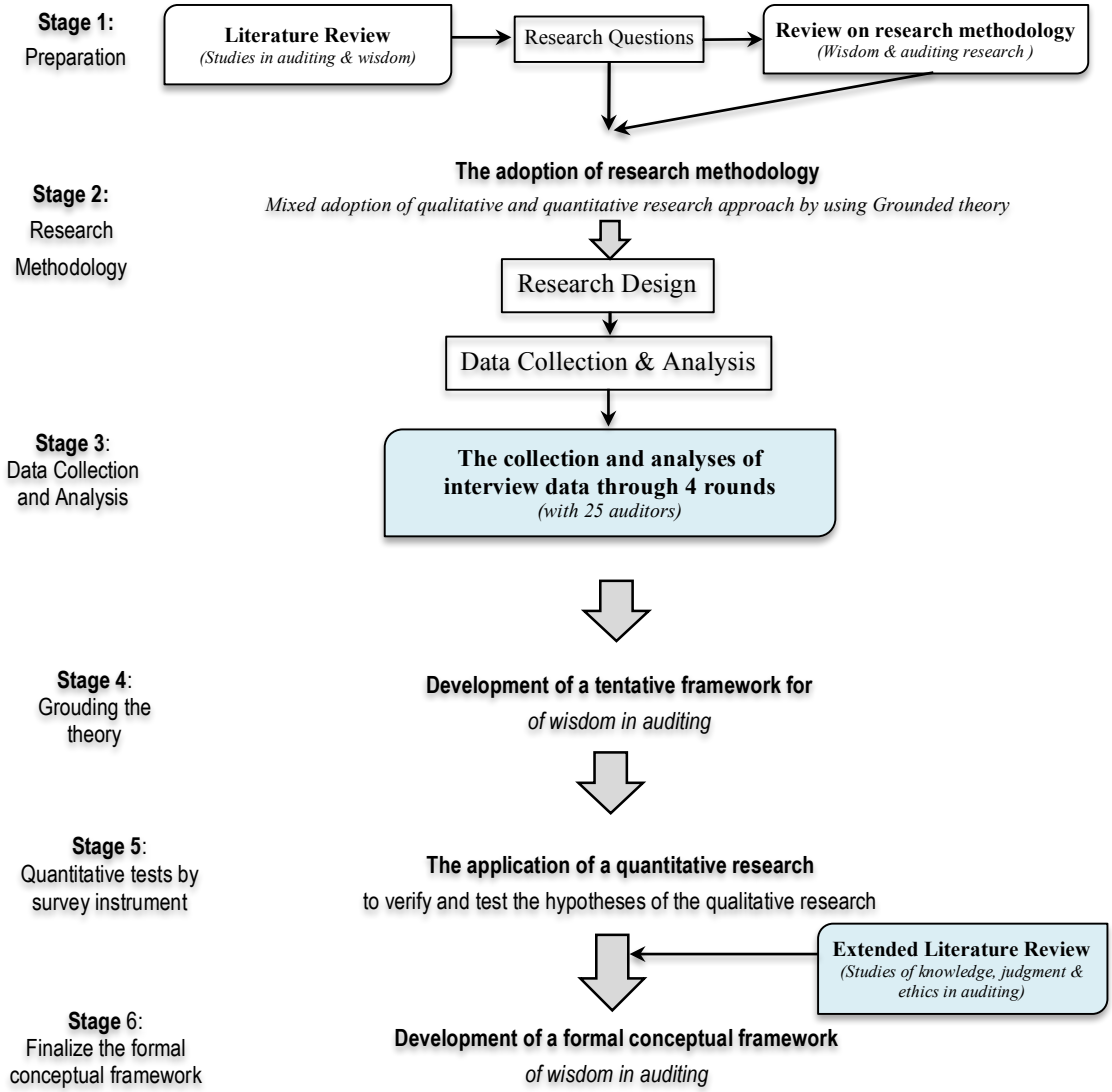

Figure 3-2: Research Design

3.5 Survey instrument

We conducted a quantitative research by survey instrument in the last step of research process. The aims the usage of quantitative instrument is to verify the framework discovered by GT and examine the correlation between sub-categories. The details of the survey instrument will be discussed in Chapter 5.

After the findings of theoretical aspects as well as the building of proposed framework, we conducted a quantitative survey to verify and justify our theoretical framework. By using the mixed methods, the research aims to create a strong research argument for the discovery of the wisdom-based model. This is an innovative point of our research project.

3.6 Summary

In chapter 3, we discussed the phronesiology and explained the choice of methodology for this study. Then, the research design was presented. In the next chapter, how grounded theory was implemented and resulted in theoretical implications for the formal theory in this research is detailed.

Chapter 4 - Data Interpretation from Grounded Theory

4.1 Introduction

This chapter presents the results of data analyses. According to the grounded theory methodology, we introduce three major coding techniques (open coding, axial coding and selective coding). Next, the actual coding process of the study are explained. Then, the result of coding process is presented by describing of core categories and sub-categories. The examples of codes and categories are interpretively explained through over the coding process. Finally, it is a summary of the chapter to summarize major findings and highlight its implications for the formal model of this research.

4.2 Coding Process according to the Grounded Theory Methodology

Data collecting and analyzing the data occurred at the same time. On this way, researcher is able to review emerging categories and sub-categories iteratively for the purpose of constant comparison. The constant comparative way is "generating and suggesting many categories, properties, and hypotheses about general problems" (Glaser and Strauss, 1967, p. 104).

According to the grounded theory methodology, the data analyses were conducted by using these techniques including: open, axial, and selective coding that are illustrated in the Figure 4-1:

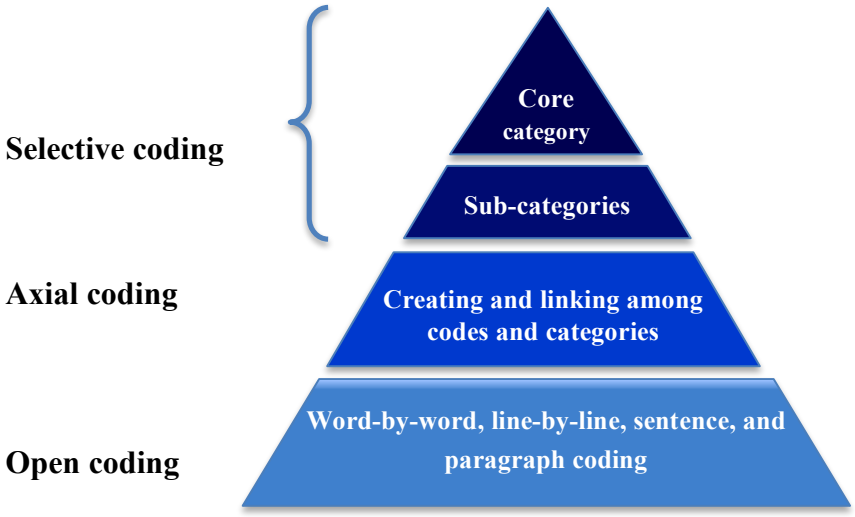

Figure 4-1: Coding Techniques

4.3 The Actual Coding Process of the Study

The actual coding process of this study included four rounds that were conducted in an iterative system in accordance with the GT methodology.

4.3.1 The Collecting of Data

The data were collected by using semi-structured and in-depth interviews. The potential interviewees were chosen by the criterion of having experience served as an auditor in public accounting firms. Since an audit team involves diverse levels of audit personnel, we aimed to select a variety of interviewees. The interviewees were chosen with different demographic characteristics, including gender, age, and experience.

As a result, the interviewees were twenty-five auditors including one director, nine managers, thirteen seniors, and two assistants (see Appendix 1). We conducted twenty-four interviews with Vietnamese auditors in Vietnamese and one interview in English with a Sri Lankan auditor. The most high-status auditor interviewed was at director, and the most low-status was at audit assistant working in audit. The audit seniority levels were interviewed as follows:

Seniority	**Total**	**Male**	**Female**	**Experience** (Average)	**No of audits** (Average)
Director	1	1	-	>10	> 100
Manager	9	2	7	7	60
Senior	13	4	9	4	29
Assistant	2	-	2	2	18.5
Total	**25**	7	18		

Table 4-1: Summary of Survey Respondents

Averagely, an interview lasts about sixty to ninety minutes. We used semi-structured and in-depth interviews with a guideline (see Appendix 2). The interview process was associated with the process of analyzing data. Guided by *theoretical sampling method* (Glaser, 1978), the interview process was conducted through four rounds (see the Figure 4-2). In accordance with theoretical sampling, the data collection is not planned in advance of analysis, but it is decided by the emergence of the core category (Glaser, 1978). During the iterations of data gathering and coding, we possibly decide what data to collect next to elaborate the emerging of the core category (Glaser, 1978). The interview guideline was refined by supplementing and deepening new theoretically sensitive questions (Glaser, 1978).

After interviews, some follow-up questions are sent by emails to interviewees during the data analysis. All the interviews were audio-recorded and transcribed. Before being translated

into English, the transcripts were sent to interviewees for checking. Then, the translated transcripts were checked by the authors and input into MAXQDA 12, which is a qualitative analysis tool.

4.3.2 The Analyzing of Interview Data

Applying the guidance provided by grounded theory methodology, actual data collection and data analysis were conducted in an iterative system of four rounds (see Appendix 5). Each round consisted of the interviewing and the analyzing of the interview data (see Appendix 6).

4.3.2.1 The Analyzing within a Round

At each round, after the interviewing, the data was analyzed as the following steps:

- **Step 1**: The audio records were transcribed, checked, and translated into English. Then, the translated transcripts were input into MAXQDA 12.
- **Step 2**: *Open coding* was done in a word-by-word, line-by-line, sentence, and paragraph analysis by using MAXQDA 12. In open coding, codes and categorizes were created to interpret what text segments described.
- **Step 3**: *Axial coding* was the process of linking interconnections among categorizes to create sub-core categorizes.
- **Step 4**: *Selective* coding related to the process of making inter-relationships among sub-core categorizes, then combining the sub-core categorizes to form core category.
- **Step 5**: The findings of each round were compared with the results of prior rounds (if possible). The purpose of constant comparison is to identify and refine better categories and sub-categories, thereby creating final core category and defining properties of the emerged core category.

Following the above steps, we were able to perform “constant comparison” among rounds. This constant comparative process was conducted until saturation was theoretically reached. In this study, the saturation was formed during the comparison between round 3 and round 4 (see Appendix 5). Therefore, we concluded that the theoretical saturation was reach at the end of round 4, and stopped the coding process at round 4.

4.3.2.2 The Constant Comparison Process of Four Rounds

Figure 4-2 shows the coding process in which the supplemental questions were developed and added through four rounds until the saturation of final theory was reached.

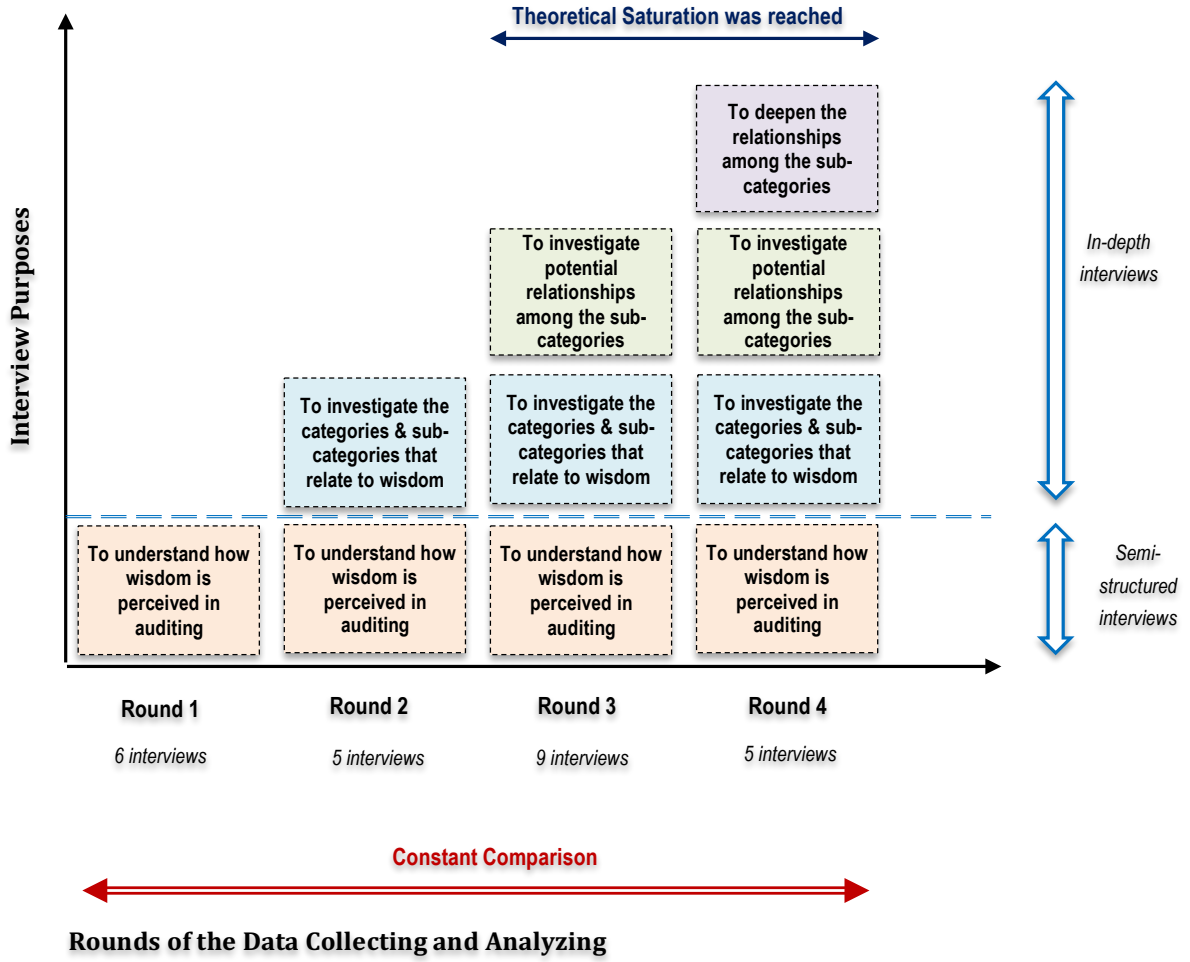

Figure 4-2: The Actual Coding Process of the Study

The coding process were associated with the four rounds of interviewing and analyzing (see Appendix 5). While the data of a prior round was being analyzed, more data was collected simultaneously in an iterative system for the purpose of constant comparison (Glaser and Strauss, 1967). Using constant comparative method, we compared the codes and categories identified among interviews of the same round. Then, the analysis of each round was compared with the analysis of the prior rounds as well (see Appendix 5). The constant comparisons allowed us examine new concepts, develop categories, and check the adequacy of the existing categories (Wastell, 2001).

In selective coding, sub-core categories and core category were developed in. These sub-core and core categories were developed from round 2 and confirmed during rounds 3 and 4. Because the coding process was iterative, the categories were refined constantly. In addition, guide by theoretical sensitivity, researchers put many memos into MAXQDA 12 to record all possible ideas, potential codes, categories, and relationships between categories and subcategories. Finally, based on the results of the core category, we constructed the suggested theory. In the following section, we present the theoretical findings.

4.4 The Sub-Categories of Wisdom for Auditing

In the Figure 4-3, this section presents the categories and sub-categories that came out from the coding process. The identification of categories was conducted in axial coding. And sub-categories were refined in selective coding.

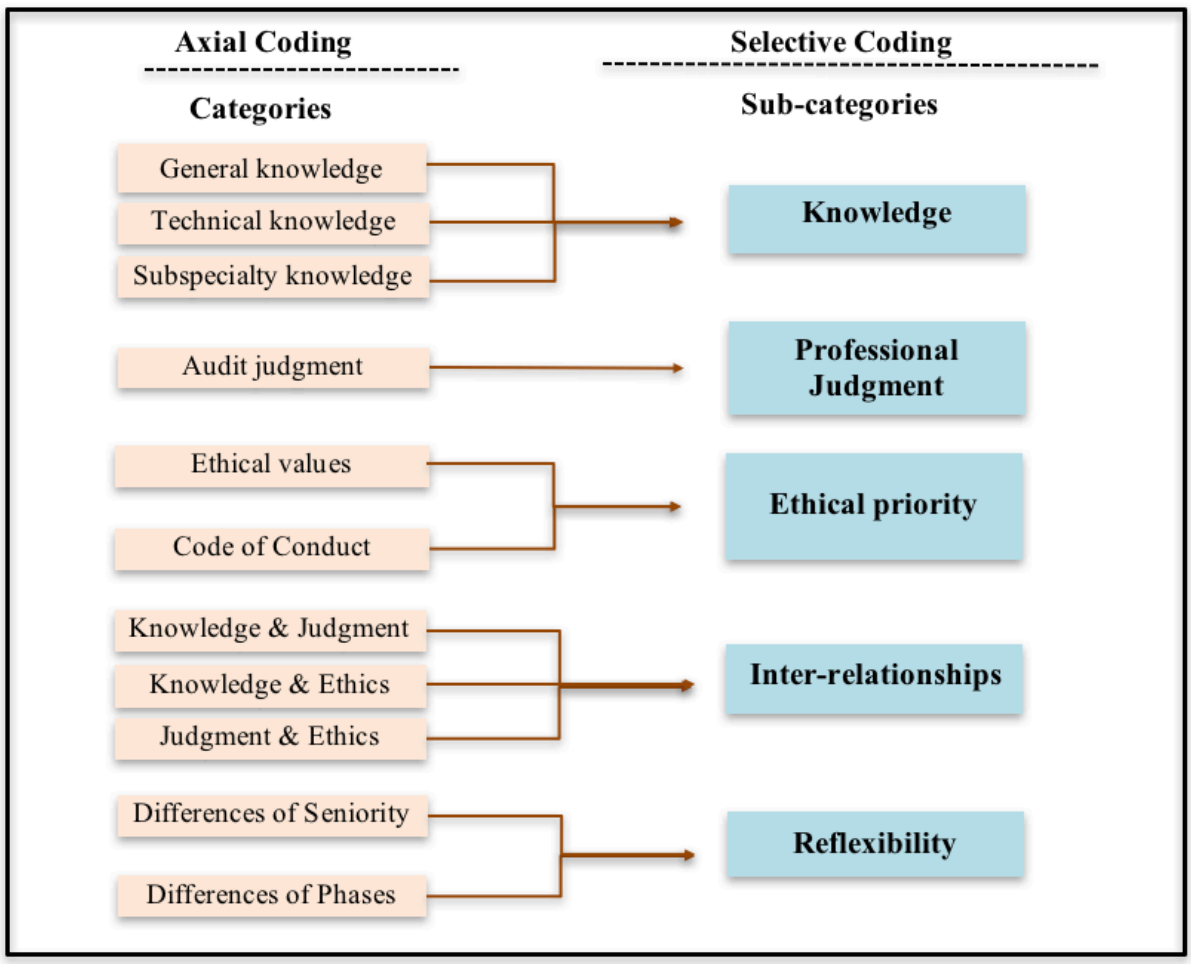

Figure 4-3: The Sub-categories and Major Categories

In the following sub-sections, the study presents the findings of all the sub-categories that generated from the coding process. The major sub-categories include: (1) the

combination of auditor's knowledge; (2) the exercise of professional judgment in auditing; (3) the requirements of ethical issues; (4) the analyses of relationships among knowledge, professional judgment, and ethics; (5) and, the different influences of knowledge, professional judgment, and ethics to auditor's decisions.

4.4.1 The Combination of Three Aspects of Knowledge in Auditing

The analysis of the empirical study indicates that auditors must attain their knowledge in three different dimensions, i.e., general, technical, and subspecialty.

4.4.1.1 General Business Knowledge

- Definition: General business knowledge relates to the general understanding of auditors about economics, business activities, management environments, and market trends. General business knowledge allows auditors have a general overview of business operations and market trends, and helps them to assess the business risks of audit clients in a variety of business situations.

- Importance of General Business Knowledge: To auditors, general business knowledge is very important in performing auditing tasks, and making sound decisions. Particularly, since audit is risk based approach, this sort of knowledge is crucial in helping auditor identify potential business risks.

> *The general understanding of business activities is used for identifying potential risks and making sense of the reasonableness of the financial statements. It helps to deal with the question: "Do the financial statements or the client's performance make sense?" (Interviewee 7)*

> *Knowledge about business is very important in these following aspects: helping auditors identify the potential risks, and examining the reasonableness of clients' business operations, dealing with or challenging clients about audit issues […]. It is very important because audit is risk based approach. If an auditor does not have general business knowledge, it is very difficult for them to perform an audit, and the audit quality could be questionable (Interviewee 5).*

> *If the knowledge of businesses is limited, auditors' ability to perform their tasks will be reduced too. It is due to he or she cannot evaluate potential risks; audit is risk based-approach. Moreover, the total time an audit team visits the clients' companies is often very limited. Every auditor has many tasks to do during the visiting period. Auditors must rely on his/her*

knowledge and judgment to access risks and perform audit procedures. Therefore, gen knowledge is very important (Interviewee 1).

If general knowledge of the economics or markets is not good, an auditor looks like an accountant. He/she has no "business acumen", and possibly makes very in-flexible decisions. General business knowledge helps auditors make more reasonable and flexible decisions. With general knowledge, audit decisions will become more appropriate and critical (Interviewee 22).

We need the general knowledge in all phases of an audit, e.g., for risk identification in planning, risk investigation in fieldwork, general review in reporting, and consulting on client management system. Furthermore, if you in-charge a high position, general knowledge is very crucial for the communications with clients. Knowledge of economics and markets helps the auditor in getting client's trust. If an auditor wants to convince clients or defense his/her arguments on audit issues, he/she needs to build client trust by showing a good knowledge of both the audit activities and the whole market" (Interviewee 24).

4.4.1.2 Technical Knowledge

- Definition: Technical knowledge relates *general domain* understanding of accounting and auditing, and *functional* [7] areas. The *general domain knowledge* is the fundamental understanding of accounting and auditing such as generally accepted accounting principles (GAAP), generally accepted auditing standards (GAAS), and the flow of transactions through an accounting system, and so forth. Most of this basic information is obtained by auditors as part of their college program. The *functional areas* relate to working techniques (the using of computer-assisted audit techniques, testing procedures, tax, etc.) and accounting issues (leases, pensions, etc.). The functional aspects are more detailed techniques than what can be learned during a college program.

Technically, an auditor is required to know how to use audit tools or software, how to follow audit procedures appropriately, how to evaluate an audit test, how to handle an accounting error, how to deal with an auditing issue, and so on.

[7] Being *functional* means having a special activity, purpose, or task; relating to the way in which something works or operates (McKean, 2005).

Technical knowledge is applied to perform audit procedures and deal with audit issues. Technical ability is the capacity of an auditor to understand accounting and auditing standards, current regulations, then apply them integrally to perform audit procedures. Hence, technical knowledge allows auditors to carry out audit tasks appropriately and quickly (Interviewee 7).

Technical knowledge can be conveyed by seeing how an auditor applies their technical ability to their tasks or how s/he deals with accounting and auditing issues (Interviewee 3).

- Importance: Technical knowledge is very important to auditors because it is the basic foundation to perform audit tasks. This sort of knowledge is crucial to auditor in these dimensions: technically understand how an audit is conducted; efficiently identify and assess risks (in the supporting of general business knowledge); and, appropriately perform audit procedures.

Technical knowledge is inevitable to an auditor. If you don't have good knowledge of economics, markets, or business activities, you may have many difficulties in managing an audit, or get many complains from clients. But, you still could be an auditor. However, if you don't have technical knowledge, you cannot be an auditor. Technical knowledge is the backbone or cornerstone of any audit jobs (Interviewee 24).

Technical knowledge is very important to all audit team members because the knowledge helps auditors perform audit procedures. It is the foundation for any audit tasks. Otherwise, auditors cannot perform audit procedures sufficiently (Interviewee 8).

Technical knowledge is very crucial to auditors in making appropriate audit decisions, especially, in the early stages of the career an auditor. Technical knowledge helps auditor know "what they need to" in the performing of audit procedures (Interviewee 16).

Since, audit is a highly professional career. Auditor must be good at technical knowledge to manage their jobs. Technical ability is basic to execute any audit (Interviewee 14).

> *An auditor who do not have technical knowledge cannot be an auditor because he does not know how to work. Without a good technical knowledge, an auditor cannot perform audit tasks appropriately. Furthermore, s/he is unable to be promoted because s/he cannot lead the audit team, or deal with clients (Interviewee 1).*

4.4.1.3 Subspecialty Knowledge

- Definition: The third aspect of knowledge in auditing is subspecialty[8] knowledge that relates to understanding of particular audit industries and clients. This sort of knowledge is acquired by auditors who have in-depth understanding of specialized areas with specific clients or certain industries. The two dimensions of subspecialty knowledge are compared and integrated to have a fulfilled understanding of the audited business.

> *In auditing, knowledge of specialized areas usually relates to two aspects: the being audited industry and the being conducted client. For instance, when we perform the procedure "Understanding the Business (UTB)", we need to present the status of the existing industry and audited client company (Interviewee 7).*

The knowledge of the being audited industry allows auditors to identify potential business risks of the audited engagement. Besides, the information of existing client is very crucial to identify inherent and control risks of the audited business. The industrial knowledge is differentiated from the client's one. Because businesses that are working in the same industry, frequently have different activities in a variety of market segments. Even though, enterprises in a similar segment are able to have different approaches to accounting and auditing methods.

> *Auditors need to have knowledge of the audited industry and client, separately. Each client has its own activities and characteristics though they are operating in the same industry. They may have various processes and operations. Auditor need to know these characteristics in detail during an audit (Interviewee 8).*

- Importance: Subspecialty knowledge is crucial to auditors, especially to audit engagements that are specialized in some areas. This sort of knowledge is meaningful to auditor in

[8] A narrow field of study or work within a specialty.
(The free dictionary, http://www.thefreedictionary.com/subspecialty)

understanding of how an audit of a specialized industry is conducted, and identifying and assessing risks (in the supporting of general business and technical knowledge).

> *The in-depth knowledge of the being audited industry or client is important because it enhances particular understandings during an audit of a specialized client. For example, in auditing of oil and gas industry, or transportation service (logistics) we need to have subspecialty knowledge about the industry, such as the characteristics of this business, specific terminologies, processes, inventories, accounting costing methods, etc. Without these specialized understandings, auditors cannot conduct auditing procedures, even though they cannot communicate or deal with their client (Interviewee 1).*

> *The particular understanding of a specialized industry is very important in order to identify risks. The knowledge helps auditors understands the special concepts and specific accounting treatment of the industry or client. Therefore, auditors may make appropriate decisions in conducting the audit (Interviewee 22).*

> *In auditing of a specialized industry, if we don't have particular knowledge of the industry, we cannot make exact or appropriate judgment or decisions. Specialized knowledge helps auditor understand the specific risks of the audited field. To some industries, we really need subspecialty knowledge to conduct our audit procedures (Interviewee 2).*

> *In auditing of some particular or distinctive industries, it requires auditors must have a very good understanding of the industry in order to manage the audit. This kind of knowledge involves the in-deep understandings on both accounting and auditing on the industry because a specialized industry usually has very different characteristics in comparison with normal accounting system (e.g., oil and gas, constructions, etc.) (Interviewee 24).*

4.4.1.4 The Combination of Three Aspects of Knowledge

The empirical findings revealed that the three above aspects of knowledge are not applied separately in practice but they are support together in making decisions. Although the three types of knowledge have particular characteristics, they are integrated in providing an in-depth understanding of practical situations.

Besides the general business and technical knowledge, the particular understanding of a specialized industry is very important in order to identify risks. These knowledge helps auditors understands the practical flow of transactions and accounting treatments. Therefore, auditors need to have all types of knowledge in decisions making (Interviewee 22).

4.4.1.5 The Sources of the Three Types of Knowledge in Auditing

The three types of knowledge can be attained through personal self-studying (1), professional educational programs (2), formal instructions from audit firms (3), on-the-job-training (4), and university programs (5). The process of self-studying relates to practical experience, personal studying (such as reading and searching), and consulting from experienced colleagues or experts. Formal instructions from audit firms relates to "annual training schedules" for each level of audit seniority. On-the-job (OJT) training is the form of instruction taking place in normal working situations. OJT training is relevant to direct coaching from experienced audit team members to their colleagues during an audit engagement. Professional educational programs involve in practicing certificates of accounting and auditing associations such as ACCA, Australia CPA, VACPA, and so on.

At the end of each interviewing, we asked interviewees to evaluate the sources of their knowledge (See Appendix 3). The scale of the evaluations includes: the most important source; very important; useful/meaningful; and not useful. The results of the evaluation for four factors as followings:

Types	General kl	Technical kl	Specialized kl	Professional judgment
Personal self-studying (1)	The most important	Important	The most important	The most important
Professional Education programs (2)	Useful	Useful	Not useful	Useful
On-the-job training (3)	Important	The most important	The most important	The most important
Audit firms (4)	Useful	Important	Important	Useful
University programs (4)	Not useful	Useful	Not useful	Not useful

Table 4-2: The Evaluation of Attaining Sources for Knowledge and Professional Judgment

General knowledge: This sort of knowledge can be attained through personal self-studying, formal instructions from audit firms, professional educational programs, and university programs. However, the most important sources for the improving of general business knowledge are self-studying and on-the-job training (See Appendix 3). Besides, inexperienced staff, e.g., new employees, can gain this type of knowledge from college programs regardless of the experience they have. In practice, audit professionals have to

improve their general business knowledge continuously because business environments change rapidly.

Technical knowledge: Technical knowledge is mainly gained through in-house training in audit firms, on-the-job training, and personal self-studying. For instance, when a new graduate joins an audit firm, s/he would normally undergo a period of training. This training aims to help new employees to understand the particular audit methodology and working environment of the firm. In practice, technical knowledge is enhanced through on-job-training and practical experience. Technical ability also is improved by the process of self-studying. In addition, a high level of technical knowledge can be attained through continuing professional education systems such as certified public accountant (CPA) programs. According to the evaluations by auditors, the most important source for attaining technical knowledge is on-the-job training and personal self-studying (See Appendix 3).

Subspecialty knowledge: Subspecialty mainly is attained by personal self-studying, on-the-job training, and formal instructions from audit firms (See Appendix 3). It is reasonable to suppose that this type of knowledge is attained exclusively through on-the-job experience by managers, directors, and especially by audit partners. On the contrary, it is less likely to be acquired through general instruction of educational or university programs.

4.4.2 The Exercise of Professional Judgment

4.4.2.1 Definition

Professional judgment is the ability of an auditor to judge an audit issue or a facing situation based on the combination of their knowledge and current analyses of existing information. *When an auditor does not have specific guidance or sufficient evidences, s/he needs to apply his/her combined knowledge and personal analyses to judge the practical situations, thereby making appropriate decisions.*

The empirical findings highlighted the important role of professional judgment in making appropriate audit decisions. Practically, auditors must exercise their professional judgment to perform their tasks through all phases of an audit engagement. This is a natural consequence of the risk-based approach in auditing. The exercising of professional judgment is a process incorporated in the three aspects of knowledge.

According to the interview results, auditors must exercise their professional judgment through all phases of an audit engagement, particularly in these followings cases:

- there is no information, or the obtained information is insufficient.
- when the current accounting and auditing standards or regulations cannot give specific directions for the working issues.

- there are many choices and we need to evaluate among them.

In practice, auditors usually deal with two types of judgment. Firstly, professional judgment on *audit decisions* relates to the identification and assessment of risks, choices of appropriate audit procedures, solutions of audit issues, audit opinions, and so forth. Secondly, judgment may be relevant to *accounting problems*, e.g., making of provisions or accruals, going concern assessment, impairment of assets, and so on.

> *Auditors have to deal with judgments on auditing and accounting. Technically, an auditor need to judge where potential risks are, which audit procedures are appropriate for an account or a flow of transactions, how to solve audit issues and adjustments, etc. Besides, auditors may need to judge on the reasonableness of accounting treatments or methods used by their clients (Interviewee 24).*

4.4.2.2 Importance of Professional Judgment

The data analyses indicate the importance of professional judgment in making audit decisions. In audit practice, auditors exercise professional judgment in all phases of an audit. Specifically, the exercise of professional judgment helps auditor make audit decisions in these following process:

- In audit planning, because auditors cannot obtain all information, they need to judge based a certain information, then exercise judgment to make decisions for audit strategies.
- In audit fieldwork, auditors need to judge on potential risks (of each accounts and transactions) to make decisions for the choosing of appropriate procedures of each accounts.
- In audit concluding, auditors need to judge on the overall evaluation of the audited financial statements, then make decisions relating to auditor's opinion.

Although judgment is subjective, it is very important. Auditors usually exercise their professional judgment in every phases of audit processes. Thus, professional judgment is crucial in auditing.

> *Professional judgment has important impact to decision making in auditing. Although judgment is subjective, it is very important. Auditors must attempt to attain more knowledge and information to improve the objectiveness of judgments (Interviewee 14).*

Professional judgment is frequently exercised at all phases of auditing process.

Auditors exercise their professional judgment frequently, e.g., from the client accepting, audit planning, fieldwork, or reporting. At the first stage of an audit, auditors must professionally judge whether they can accept the audit client or not. Then, they need to exercise their professional judgment in making audit plan and performing the plan in audit fieldwork. In reporting, they still need to exercise professional judgment in making decisions on the issuance of audit opinions and the disclosure of information (Interviewee 23).

In planning, auditors cannot have all obvious information, they need to assume and exercise judgment to make appropriate audit strategies based on a certain amount of available information. In audit fieldwork, they need to judge (e.g., potential risks for each account) to perform appropriate procedures for each account. It means that they don't need to check all transactions but focus on significant items by using professional judgment (Interviewee 7).

The exercise of professional judgment happens from the initial step to the last one. For example, for client acceptance, the in-charged auditors need to judge whether they can accept client or not. Next, in designing audit strategy, doing the fieldwork, or reporting, auditors must use their professional judgment to support and complete their tasks. However, the usage depends on case by case (Interview 25).

Because the accounting and auditing use risk-based approach, auditors usually deal with situations involving risks and uncertainties. Therefore, they must exercise professional judgment frequently. If an auditor who don't have good judgment ability, it is difficult for him/her to in charge a high position, e.g., manager or partner (Interviewee 3).

Professional judgment is crucial since it is applied frequently. Auditors need to make judgment in all steps of an audit process. All audit team members need to have a certain level of this judgment ability. Although an audit assistant, who often in charges simple tasks, also need to make judgment in their tasks, such as choosing a threshold for sampling or testing. Judgment may be improved through practical experience. If an auditor hasn't good judgment, he may do their jobs ineffectively with many tasks rather than others (Interviewee 16).

Normally, there are two approaches to make a decision. If we have obvious and sufficient evidence for the examined issue, we can make proper decision by evidence-based approach. Otherwise, we need to judge on the reasonableness of the existing circumstances.

> *In decision making, knowledge is the first important factor that guides our thinking. By using our knowledge, we may have two ways to make decisions. First, we can make decision based on clear evidence if possible. However, when we think the current evidence are insufficient, we need to judge, e.g., judge practical situations, inside rationales, or (even) the existing evidence, and so on. Sometimes, we many use both evidence-based and judgment-based to make an appropriate decision (Interviewee 22).*

The exercise of professional judgment of each audit varies in accordance with in-charged positions and the executed phases of auditing process.

> *Although all audit team members need to exercise professional judgment to perform their tasks, professional judgment becomes more important to high-level auditors, especially from managers to partners. To audit assistants, the professional judgment is usually applied to deal with simple tasks. The major things to junior level is to closely follow audit procedures (Interviewee 21).*

Besides, professional judgment helps auditors in dealing with their tasks effectively and efficiently.

> *Professional judgment helps auditor reduce the workload. Exercising good judgment, auditors may focus on crucial or significant items. Then, they only need to perform a certain important procedures or steps but still make appropriate decisions and ensure the audit quality. In contrast, if they don't have good judgment or high confidence on our judgment, they need to do more steps with high workload to improve our confidence on judgment (Interviewee 20).*

> *The usage of the obtained information or available knowledge may be inadequate occasionally. To make a sound decision in auditing, auditors are required to exercise their professional judgment carefully to consider the reasonableness of facing issues. By using professional judgment, auditors*

possibly recognize the rationale of the issues and take a course of proper action (Interviewee 13).

4.4.2.3 Why We Need to Exercise Professional Judgment in Auditing

According to the empirical analysis, there some reasons we need to exercise professional judgment in auditing as followings:

- **The nature of accounting and auditing bases:** The requirement of the exercise of professional judgment stems from the current approaches of accounting and auditing. We often use rule-based or principle-based[9] approach in accounting. For example, in IFRS framework, we usually use principle-based approach; in US GAAP[10], we usually use rule-based approach. Professional judgment is a key skill for accountants and auditors under a principle-based accounting regime. In rule-based application, if the rules are very clear, we may do not need to use judgment; however, in some case, we still need to judge. In auditing, we use risk-based approach that requires the exercise of professional judgment to identify and access risks and uncertainties since risks can occur in varying ways at different types of businesses.

Therefore, the need to exercise of professional judgment stems from the nature of accounting and audit bases. Alternatively, being able to make sound judgment is a crucial requirement of professional accountant because of the existing applicable legal environments such as accounting and auditing standards, regulations, and law.

We need to use professional judgment in auditing because we use principles-based or rules-based approach for accounting, and risk-based approach for auditing (Interviewee 3).

The guidance of principles-based sometimes is not specific, auditors are required to use their professional judgment to deal with practical situations (Interviewee 17).

- **The continuous changes of audit environment:** As a result of the global financial crisis, demands on corporate reporting and auditing are changing and challenges to the role of

[9] Rules-based accounting is basically a list of detailed rules that must be followed when preparing financial statements. *Principles-based accounting* such as generally accepted accounting principles (GAAP) is used as a conceptual basis for accountants. A simple set of key objectives are set out to ensure good reporting. Common examples are provided as guidance and explain the objectives. (Investopedia: http://www.investopedia.com/ask/answers/06/rulesandpriciplesbasedaccounting.asp, accessed on 28 Mar 2017)

[10] According to a widely-held view, U.S. accounting standards are more rules-based than principles-based.

auditing are increasing (ICAS and FRC, 2016). There are many raising questions about the quality of auditing, its effectiveness, and the role of professional skepticism and judgment. Audit is a fast-changing environment because the nature of financial reporting continues to evolve: more complex, more areas of judgment, and more qualitative disclosures (Schilder, 2013). Auditors, in the changing environment, may face with inexperienced circumstances or emerging situations. In coping with the challenges of the environment in which audits are conducted, auditors need to be capable of exercising professional judgement.

> *Our society, in general, and business environment, in particular, always changes and evolves new things, e.g., the emerging evolvement of new services and business activities. These new changes require our adaption for unexpected situations, then we need to judge, especially, in auditing (Interviewee 3).*

- **The insufficiency of existing applicable standards and regulations:** Accounting and auditing standards, or applicable regulations sometimes are impossible to monitor specific empirical cases. For instance: there is no specific standard covering the transaction; there is a standard but no detailed guidance of how to deal with a specific execution in practice; or there is more than one alternative that possibly apply to the transaction. In those circumstances, auditors need to use professional judgment. In addition, standards or regulations are usually built from past cases. However, it is possible to occur new issues and unexperienced cases in practice. Thereby, auditors need to exercise professional judgment to manage new situations.

> *The applicable accounting and auditing standards are settled up from current business situations or past cases that only reflected past experience. However, we need to adapt with new changes and unforeseen cases for emerging cases in the future. Because we cannot follow exactly the past rules for future cases, we need to judge to make appropriate decisions. (Interviewee 18).*

> *The exercise of professional judgment is compulsory to auditors since accounting and auditing standards are unable to give specific directions for all practical circumstances. Being an auditor, I need to judge the practical situations carefully to ensure the most appropriate treatment for specific cases (Interviewee 25).*

- **The amount of available information:** The amount of available information that

auditors possibly attain is one of the reasons for the exercise of professional judgment by auditors. In case of having less information or a huge amount of information, auditors always need to exercise professional judgment.

If the necessary information is less or not available at the time of decision making, auditors need to judge in order to make appropriate decisions. For example, auditors usually need to apply professional judgment in audit planning to make audit strategy based on a little of initial information. Or, sometimes, while examining the provision or accrual accounts, because of the lacking of sufficient information, auditors need to judge in auditing of these accounts.

> *Sometimes, we need to use professional judgment to make a decision although we may not have sufficient information for the decision. It is possibly due to we cannot have that information, or we don't have enough relevant information at the time of making decision. It means that we must make decisions even though we have little information. In those cases, e.g., in making an audit plan, professional judgment is compulsory and really meaningful. However, later, when we have more information, we need to revisit our initial judgment and revise the decision if necessary (Interviewee 7).*

> *In audit planning, we cannot know all information, we need to have certain information and exercise judgment to make appropriate audit strategies (Interviewee 22).*

In auditing of provision accounts, auditors usually need to apply professional judgment to verify the reasonableness of the provision methods or recorded amounts.

> *Judgment on provision accounts is an example for making judgment in case of lack of information. For instance, there is a provision of US$ 2 billion made by client according to a method. However, we don't have specific guidance of the method. We need use accumulated knowledge and experience to examine and make judgment about the method. If we think the method is reasonable, we may agree with the provision amount. However, we may judge that the method is unreasonable, we may advise client to adjust the amount. In future, if we have more information about the provision, we may revisit the provision issue (Interviewee 25).*

In contrast, when auditors must deal with a huge amount of information (e.g., a big data of transactions or accounts), they are unable to verify or examine all information but apply professional judgment to choose focused items. For example, auditors professionally judge which items are material or not, then focus on examining the material items. In that way, in dealing a big data, professional judgment helps auditors choose significant items to focus, thereby increasing audit efficiency and ensuring timely responses within tight deadlines.

> *When there is a lot of transactions or accounts, auditor need to make professional judgment in dealing with so much data. Auditors cannot examine or check all information they have, they use their professional judgment to focus on material accounts or transactions. Professional judgment helps audit perform appropriate and efficient tasks (Interviewee 8).*

Therefore, professional judgment is necessary due to the amount of available information. Professional judgment is compulsory for auditors to complete their tasks for all cases having very little information and having a huge amount of information.

4.4.2.1 Influencing Factors to Professional Judgment

The factors may influence to the exercise professional judgment in auditing consist factors relates to *personal characteristics of auditors* and *existing working environment*.

- **Factors relate to "internally personal characteristics of auditors"**: Empirical findings revealed that personal characteristics of auditors possibly influence to the exercise professional judgment in auditing. These factors internally belong to personal characteristics of an auditor such as their accumulated knowledge (1), attitudes of risks (2), and personal abilities and skills (3)

+ (1) The combination of the three aspects of knowledge: The three dimensions of knowledge of an auditor directly influences to their professional judgment.

> *According to the economic environment, the behavior of business will be different. If the economic situation is not good, the business will try to cut their expenditures. The general knowledge of economic activities helps auditors to identify and assess risk because risk depends on business environment (Interviewee 1).*

> *Knowledge is the foundation of judgments by auditors (Interviewee 18).*

> *As an auditor, we need the three types of knowledge to make professional judgment. If we are lack of knowledge, our judgment is impossible to be appropriate (Interviewee 24).*

+ (2) Risk attitudes: The empirical findings showed that auditor's professional judgment was influenced by the attitudes since people differ in their willingness to take risks. For instance, if an individual who are *risk-seeking decision-maker*, s/he has a high-risk taking propensity. If an individual who are *risk-averse decision-maker,* s/he has a low-risk taking propensity. And, a risk-neutral auditor usually reacts to the risks involved in a situation neutrally. A risk-seeking decision-auditor is more likely to recognize positive outcomes, thereby tending to under-estimate the potential risks in a situation. Contrastingly, a risk-averse decision-auditor may weigh negative outcomes, leading to an over-estimated probability of a loss or a heightened perception of risk.

> *In auditing, the attitude about risk of an auditor is important. The attitude about risk of an auditor may influence to his/her professional judgment on an audit issue or a situation (Interviewee 3).*

> *In some cases, auditors may have the samelevel of knowledge and experience, but they possibly access the potential risks of a situation dissimilarly, or make judgments in different ways because their risk attitudes or their risk tolerance[11] are different (Interviewee 18).*

> *In evaluating a financial statement, auditors' risk perceptions differ, e.g., risk attitudes of "ability to generate revenue" and "bad debt recovery". In the examining of bad debt, because of unlike risk attitudes, auditors may have different opinions on the bad debt amount. A risk-referring person may only take a notice on the bad debt situation, but a risk-averse auditor will present a very detailed note about on the bad debt account such as estimations of the amounts, recovery schedule, then propose very specific advisors for the bad debt amounts (Interviewee 4).*

This finding reconfirmed prior literature of the effect of risk attitude on audit judgments. Farmer (1993) conducted a test on the effect of risk attitude on auditor judgments in large audit firms by using multi-attribute utility theory. This research examined that tendencies for

[11] Risk tolerance: the ability or willingness to tolerate risk.

both risk aversion and risk preference occur among auditors. However, the risk aversion relevantly influences on an auditor's reaction to risk because most auditors are risk-averse (Farmer, 1993).

+ (3) Personal abilities and skills: The personal skills of an auditor that possibly affect to professional judgment relate to the abilities for data analysis, problem solving, learning ability, and adoption ability to new changes.

> *If an audit has good skills of analyzing data, synthesizing information, solving problems, s/he may exercise better judgment than the others. (Interviewee 3).*

> *Professional judgment is improved by an active way of learning through experiential activities rather than a passive method of learning. Passive learning methods may improve technical things, but judgmental ability must be improved by a process of active learning (Interviewee 4).*

- Factors relate to "externally working environment":

+ (1) Existing applicable accounting and auditing system: Auditor's judgment, indicated by empirical data, is affected by the applicable accounting and auditing standards and the effective legal system of the current audit.

> *The exercise of professional judgment varies on the applied accounting and auditing systems, or the using legal environment. For example, US-GAAP or IFRS. However, we always need to exercise the professional judgment.*

+ (2) The nature of clients and their business environment: Professional judgment of auditors may change in accordance with the existing business environment and natures of the being audited client. Since, the current business environment influences to behaviors of the business, then, it affects to auditors' attitudes and judgments about the business behaviors. If the current working conditions of the business is good, it means that there is not a high of improper revenue recognition (overstatement).

> *The nature of the being audited client, e.g., the client company is operating in a stable or unstable environment; the company's internal control system is good or not; what kinds of managerial philosophy of the board of*

> *management, has a large impact to an auditor's judgment. For instances, if the company managerial philosophy is very transparent with high competence, we may may have a strong believe in the client's judgments. Even though, client's judgments may be incorrect, there may be not serious outcomes (Interviewee 3).*

+ (3) The pressures from auditing firm: The interviewees indicated that auditors, especially to high levels, usually manage their client portfolios under many pressures, including maintaining client, generating revenues, touch deadline, and so on. These pressures possibly influence to the judgment by auditors, thereby affecting to decision making process.

> *In audit decision making, external factors may carry out pressures to the higher level, e.g., pressure of getting new clients, increasing income, improving KPI to get bonuses or promotion (Interviewee 18).*

+ (4) Ethical environments: The empirical data revealed that ethical requirements and code of conduct affect to professional judgment by auditors.

4.4.3 The Ethical Requirements

4.4.3.1 Professional Ethics is a Core Value to Auditors

The data analyses indicated that ethics is one of the most important aspects in auditing. It could be said that *"ethics is the core value to auditors"* since ethics is the first priority virtue to a person who want to become an auditor. Moreover, high ethical perception help auditors continuously learn, update, and improve themselves.

> *Ethics is the core value in auditing. If a person who is not qualified ethical requirements in auditing, s/he should not be an auditor. Because it is impossible for that person to perform their tasks appropriately without a strict compliance with ethical requirements (Interviewee 24).*

> *Ethics is the first priority thing in auditing. If an auditor who can't conform the ethical requirements in auditing, he should choose another career that is more suitable to him/her than audit. Since, ethical compliance is a compulsory demand of any auditor (Interviewee 9).*

All audit team members must have high ethical attitudes. In recent years, there are many scandals of the ethical violations in auditing, especially for top level. In those case, the auditors acknowledge the potential violation but they did not behave ethically and led to the serious penalties.

> *Ethics is a very important requirement in auditing. Although audit process is designed very well, if the executed auditor does not perform it appropriately, the audit quality cannot be high. Then, it is an unethical case. Therefore, ethics is very crucial for auditors. Ethical requirements are highly emphasized to high level auditors (Interviewee 25).*

4.4.3.2 The Difference of Ethical Requirements to Each Seniority Position

Although the professional ethics in auditing is a core value, indicated by the empirical findings, the possible outputs of ethical problems are dissimilar in accordance with different levels of audit seniority.

- To low-level auditors, the possible outputs of ethical problems may not cause serious or material issues. It is due to they are supervised closely by their supervisors. Furthermore, their decisions usually are immaterial and only related to their simple tasks. All crucial issues will be coached or reviewed by higher seniority levels.

> *The results of unethical issues may differ among varying audit levels. To low-level audit positions, e.g., assistants, the impact of ethical issues may not be serious since low-level auditors usually do not have the right to make material decisions. Moreover, their decisions are carefully reviewed and coached by their seniors or managers (Interviewee 24).*

- To high-level auditors, ethical requirements become more important because the top auditors usually keep a lot of private and confidential information[12] provided by audit clients. Additionally, high-level auditors must exercise hard judgment and make important decisions. Then, the possible outputs of ethical problems are crucial to high-level auditors. Additionally, high-level auditors usually have many pressures such as keeping current clients, getting new clients, attaining good key performance index (KPI), managing tight deadlines, and so on. Therefore, unquestionably (besides), the ethical perception of the high-level of auditors also are obvious because they are self-conscious about their obligatory responsibilities of an audit.

[12] The obtained information from clients is necessary in conducting an audit, however, the private information is compulsory kept secret from all other users in order to protect the confidentiality of information.

Since, the top auditors usually keep much important information of clients and make crucial decisions in auditing, the ethical requirements to top auditors are extremely significant and remarkable (Interviewee 3).

Auditors, who are in-charged high audit positions, usually deal with many pressures such as promoting clients, generating revenue, controlling deadlines of many engagements, etc. (Interviewee 19).

Ethical requirements are highly demanded to all audit team members. However, the possibility of ethical violation often happens to high-level auditors because they usually need to make important and material decisions. In the meanwhile, low level auditors don't take a part in crucial decisions, then they do not have many chances to go against (Interviewee 7).

Therefore, the research revealed that ethical requirements impact dissimilarly to different levels of audit seniority. The low levels since their tasks are mainly assigned, designed, and supervised by higher levels. To high-level auditors, e.g., seniors, managers, and partners, ethics is very crucial since they need to take into account all the relevant issues to manage an audit. They are always being skeptical and conforming with codes of conduct in auditing.

4.4.4 The Relationships among the Sub-categories

The interviews and data analyses of stage3 and 4 (in the Figure 4-1) revealed that there were relationships between the sub-categories (knowledge, professional judgment, and ethical values). The findings emphasize that no audit ought to be completed without such aspects of auditor knowledge, the ability to exercise professional judgment, and ethical considerations.

4.4.4.1 Knowledge and Professional Judgment

- **Knowledge to professional judgment:** Most of interviewees stated that knowledge considerably supports the exercise of professional judgment. Knowledge is a basic foundation for auditors in making judgment.

Knowledge is a foundation of judgment. Auditor apply their knowledge on auditing, business activities and existing markets to exercise judgment (Interviewee 1).

The combination of the knowledge types helps auditors understand about the practical situations, then making professional judgment. Knowledge supports and improves audit judgment (Interviewee 22).

Knowledge strongly influences to auditors' judgment making process. It is a basis for judgment. If an auditor does not have good knowledge, the quality of his/her judgment should be questionable (Interviewee 18).

Knowledge has a strong impact to an auditor's judgment (Interviewee 19).

Knowledge is a compulsory foundation of an auditor if s/he want to be a good auditor, especially, knowledge is necessary in making professional judgment (Interviewee 23).

- **Professional judgment to knowledge:** On the contrary, some of interviewees mentioned about the influences of judgment to the improvement of knowledge. They stated that judgment may help auditor enhance their knowledge in some cases. Some of interviewees were not sure about this inverse influence since they thought that it may take a long time to see the process of knowledge enhancing.

I think, in some cases, judgment can create new knowledge to auditor. If we have a new regulation, it means that we do not have much knowledge or experience about the regulation. Auditors usually apply their judgment to find an appropriate application of such new regulation. Then, the application can become knowledge. However, this infrequently happens. This impact is not strong as the support of knowledge to judgment (Interviewee 8).

Sometimes, judgment helps improve knowledge when it helps auditors know the aspects that they need to acquire more knowledge, e.g., looking into more information of an unobvious issues (Interviewee 22).

In additions, there was an opinion that knowledge improvement is a continuous process since the society and business environment is quickly changing. Knowledge need to be updated and improved regularly to adapt with new changes. Good judgment is an ability helps auditor improving their knowledge, especially to knowledge is in-completed or out of dated.

> *Judgment is useful in enhancing and expanding knowledge. Besides, judgment can help auditors re-confirm the knowledge passively received from schools or training (Interviewee 4).*

4.4.4.2 Professional Judgment and Ethics

- **Ethics to professional judgment:** In practice, in making some specific judgment, we need consider ethical requirements carefully since ethics is a foundation in making those judgments. For example, judgment related to evaluation of bad debt items, the disclosure of subsequent events, and so forth.

For instance, to say that ethics is foundation for judgment in some situations, an interviewee gave an example from his experience. The example described a judgment made on the presentation of a bad deb amount as following:

> *There was a business which has bad debt amount recorded in their financial statements. The company had difficulties in collecting their account receivables with debtors. Then, the company's board management asked for help from "a bad debt collector". The debt collector was an entity that hired aggressive persons who can collect bad debt by daring and threatening. In that way, the company collected their bad debt. Therefore, the company did not make high provision for their bad debt account, but they recorded expenses that were paid to the debt collector. During the audit, auditors made judgment based on ethical regulations then verified the account. According to code of conduct, auditors concluded that the company need to make provision for the bad debt account and expense could not be recorded as management fees. (Interviewee 1).*

Although, the influences of ethics to judgment does not occur frequently, this example showed that ethics is basis for judgment in some situations.

- Professional judgment to ethics: Most of interviewee did not mentioned about the influence of professional judgment to ethics.

4.4.4.3 Knowledge and Ethics

- **Knowledge to Ethics:** The data analyses showed that there were two dissimilar perspectives on the impact of knowledge to ethical ability. Many auditors believed that good knowledge could help auditor improve their ethical values.

> *Good knowledge may help auditors understand deeply about ethical requirements or the code of conduct in auditing. This means, except for intentional and purposeful actions, good knowledge probably improves ethical values (Interviewee 11).*

> *The term: "A very good knowledge person" does not mean that s/he complies with, or conform to all legal or ethical regulations. However, knowledge has positive influence to ethical aspects of auditors. Since good knowledge helps auditors clearly understand ethical requirements as well as the possible rewards or punishments. A good understanding of ethical problems helps auditors avoid violating because of misunderstanding or misinterpretation (Interviewee 8).*

> *An auditor who has good knowledge may have better ethical values. However, this statement is not always correct (Interviewee 4).*

On the other hand, a few auditors stated that knowledge and ethics are different thing. If a person who has a good knowledge, s/he usually may have a good understanding on ethical issues. However, it doesn't mean that s/he always behave ethically because ethics is a personal characteristic.

> *Ethics is a personal and private attribute. If a person is ethical, s/he always has tendency to behave ethically. However, if they are not, they don't care much about ethics. Even though, if they have good knowledge, they may use their knowledge to avoid or get out of responsibility. This behavior principle happens similarly to auditors (Interviewee 19).*

In addition, a good knowledge person may evade ethical requirements by using his/her expertise and trickery in short-term.

> *Practically, ethics and knowledge may be not relevant. In a negative aspect, an expertise but unethical auditor may try to evade legal or ethical regulations by trickery. However, it is very rare and the violation may be only hidden in short-term (Interviewee 23).*

- Ethics to Knowledge:

Ethical values may help auditors improve knowledge since a highly ethical person tends to study and improve their abilities to qualify job requirements. However, this influence is not strong and it is not frequent.

> *I think, ethics can help auditor enhance knowledge. For instance, auditor's actions for "subsequent events" [13]. Depending on each situation, such events may or may not be disclosed in an organization's financial statements. In practice, ethical auditors will carefully examine the events and decide whether the subsequent events should be disclosed or not. The process of examination usually help auditors understand more about the events, thereby improving their knowledge and practical expertise (Interviewee 20).*

> *A skeptical and ethical auditor will try their best in looking for new things to improve knowledge. Ethics is a useful motivation for him/her to improve their knowledge. However, this is indirectly influence. Usually, people improve their knowledge since they want to, or they have to do. Rarely, people try to improve themselves since they are ethical (Interviewee 6).*

4.4.5 The Different Influences of the Sub-categories to Decision Making Process

The empirical findings indicated that the factors influenced to decision making process in auditing in different ways base on the varying levels of seniority and and audit phases.

Indicated by data analyses, knowledge, professional judgment, and ethics were differentiated from each other according to the audit seniority (levels of audit position and experience). The reason is that the assigned tasks to each levels are very different. Low-level auditors mostly use simple judgment which based on obvious evidences in performing their tasks, but high-level auditors mostly used judgment-based.

> *Professional judgment depends on the types of decisions and levels of audit seniority (Interviewee 1).*

> *The requirements for each level are different. For example, to audit assistants, technical knowledge is very important. To audit seniors, technical knowledge is required at a higher level. Professional judgment is also highly required since the judgment made by seniors becomes more important. To*

[13] A subsequent event is an event that occurs after a reporting period, but before the financial statements for that period have been issued or are available to be issued. (Accountingtools, 2017).

> *audit managers, the combination of the three kinds of knowledge and judgment become very crucial because managers are responsible for the risk of the audited report. At a top level, audit directors and partners, judgment is very important; and judgment is supported by general knowledge (Interviewee 1).*

The analyses of the different influences of the sub-categories to decision making process will be continued examined and clarified in Chapter 5.

4.5 Summary

In Chapter 4, we explained the coding process and its results. The chapter also described the categories and sub-categories that generated over four different round of coding process. Following this chapter, the presentation and interpretation of the survey instrument is discussed.

Chapter 5 - Data Analyses from the Survey

5.1 Introduction

We conducted a quantitative research by a survey instrument as a last part of the research process. The quantitative instrument aimed at verifying the proposed framework by GT and examining the correlation between the sub-categories. By using the mixed methods, the study takes aim at creating a strong foundation for the proposed theory.

The proposed theoretical model forms the basis of the survey instrument associated with this research. The prior empirical findings indicated that the sub-categories were dissimilar in different their audit seniority sub-categories [14] and audit phases. Therefore, we design a survey to identify the relative importance of sub-categories to decision making process in auditing. The relative importance of sub-categories, including *knowledge, professional judgment, and ethical values,* are assumed to be dissimilar according to seniority structure and audit phases.

Practicing auditors were asked to assess the relative importance of each determinants in each audit position and phase. The audit seniority and three main audit phases are briefly described below. The audit seniority and phases are not mandated by auditing standards, but are commonly followed by practitioners in public accounting firms.

5.1.1 Audit Seniority

In audit firm, *audit assistants* are inexperienced personnel. They may be novices or freshmen that have no practical experience. The average working experience of audit assistants is around a few months to two years. Audit seniors usually have around two to five years of working experience. They often are experienced assistants and promoted to be seniors who act as audit team-leaders under the instructions of audit managers and partners. Audit managers are experienced employees who have five to ten years of working experience. Partners and directors are the highest level of audit personnel who have more than ten years of working and practical experience. Managers, directors, and partners are experienced auditors who are responsible for the audited financial statements as certified public accountants. The audit seniority is usually allocated in auditing firms as the hierarchical structure in the Figure 5-1.

[14] Seniority: a privileged status attained by length of continuous service, as in a company. Seniority is the amount of time you have worked at a job or for a company compared to other employees, or is the state of having a higher rank than another person (Merriam Webster, 2017)

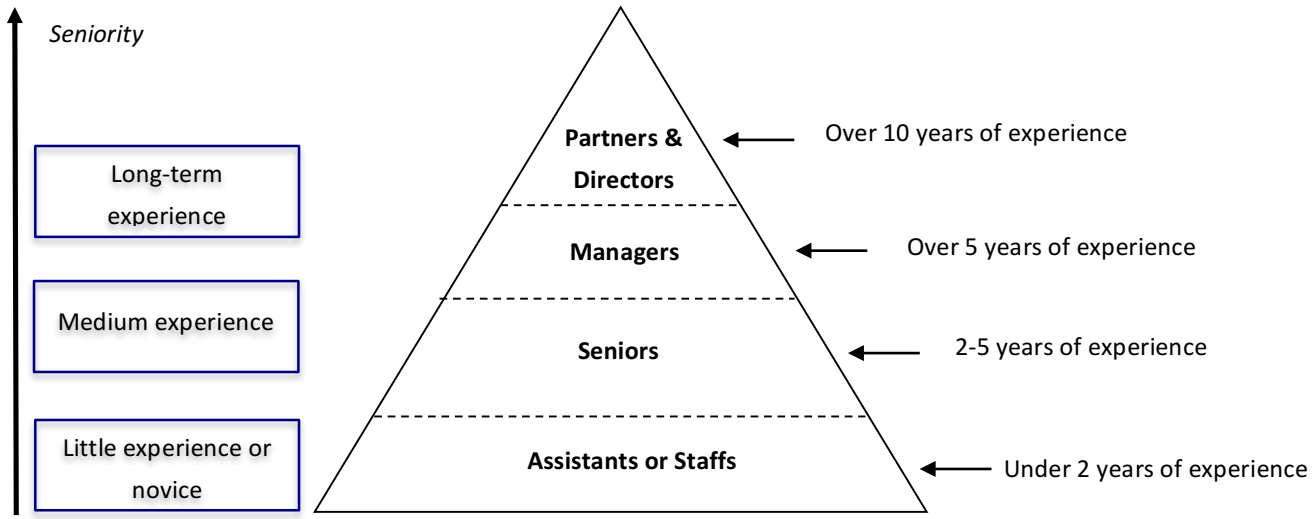

Figure 5-1: Hierarchical Structure of the Seniority in an Audit Firm

An inexperience audit assistant must work on their tasks under careful supervision and instruction of an audit senior. Audit seniors are key persons to conduct an audit, but they are always supervised and reviewed by partners, directors, and managers who have much more professional knowledge and expertise. In consequence, an audit is always conducted by an in-charged team that presents a different hierarchical knowledge structure.

5.1.1 Audit Phases

The analysis of the empirical case indicates that knowledge are different in varying phases in auditing. For example, it does not require a high level at the first phase. These phases are mostly performed by audit assistants and seniors. However, the last phase requires a high level of auditor knowledge and professional judgment, *wisdom,* to review, make important decisions, and formulate the final audit opinion.

In practice, the three phases are corresponding to *planning, fieldwork, and reporting*. The survey was designed based on the audit phase format described above.

5.2 Survey Instrument and Statistical Tests

5.2.1 Survey Design

We designed a survey instrument to examine the perceived importance of each sub-categories (see Appendix 4). The survey was formatted based on the audit seniority and phases as the mentioned explanation. The online questionnaire was sent to auditors working in public accounting firms in Vietnam, Ho Chi Minh City.

The online questionnaire was sent to about 100 practicing auditors. Respondents were asked to rank the determinants for each position and phase of the audit on a scale of relative importance, from a low of 1 to a high of 10. We allowed respondents choose N/A for "not applicable" values. The response rate was over 80 per cent with 81 of around 100 questionnaires completed. This high response rate was achieved because the authors contacted directly to target respondents for the project while the survey was conducted. We removed 3 three responses that show unreasonable data in the data cleaning[15]. The final stored data was 78 responses.

The most high-status auditor surveyed was at partner level, and the most low-status was at audit assistant working in audit. The audit seniority levels were surveyed as follows:

Seniority (Abbr. code)	**Total responses**	**Experience** (Average)	**No of audits** (Average)
Partner (S1)	1	> 15	> 200
Director (S1)	1	>10	> 100
Manager (S2)	22	6.9	63.6
Senior (S3)	44	3.8	27.9
Assistant (S4)	10	1.8	18.5

Table 5-1: Summary of Survey Respondents

5.2.1 Friedman's non-parametric test for ranking data

Non-parametric tests, or "assumption-free tests" can be used to test hypotheses that do not not make many assumptions. Non-parametric tests are a nice gentle way for us to look at the idea of using a statistical test to evaluate a hypothesis (Field, 2013, p.214).

To verify the perceived importance of sub-categories by auditors, we designed and conducted Friedman's non-parametric test to evaluate our proposed hypothesis by GT in previous chapter. Friedman's non-parametric tests possibly overcome the problem of shape distribution of scores by ranking data (Field, 2013, p.214).

The Friedman test is the non-parametric alternative to the one-way ANOVA with repeated measures. It is used to test for differences between groups when the dependent variable being measured is ordinal. The Friedman test is an appropriate technique for our survey instrument

[15] Once processed and organized, the data may be incomplete, contain duplicates, or contain errors. The need for data cleaning will arise from problems in the way that data is entered and stored. Data cleaning is the process of preventing and correcting these errors. Common tasks include record matching, identifying inaccuracy of data, overall quality of existing data, deduplication, and column segmentation.
(https://en.wikipedia.org/wiki/Data_analysis#Data_cleaning).

to compare the distributions of the sub-categories (variables) across the audit seniority and phases. Our data is either collected from a small sample, are importantly non-normally distributed, or the measurement scale of the dependent ordinal variable (not interval or ratio).

In this study, the Friedman's test was aimed at verifying the hypotheses that there is a difference between the sub-categories among audit seniority (e.g.: partner, manager, senior, and assistant) and audit phases (planning, fieldwork, and reporting).

5.3 Survey Results

The results of Friedman's tests were conducted separately according to tests of differences among audit seniority and audit phases. Each result is represented in descriptive statistics, auditor ranking, and analysis of variance for sub-categories across audit seniority.

5.3.1 Importance of the Sub-categories within Audit Seniority

5.3.1.1 Descriptive Statistics

Table 5-2 presents the median mean score for the sub-categories within the seniority structure. The median score for the determinants ranged from **5 to 9**. This indicates that each characteristic is important across all levels of the audit seniority.

The relative perceived importance for each sub-category within the four levels of the audit seniority is shown in Table 5-2 and Table 5-3. The table 5-2 summarizes the *descriptive statistics* of ranking scores on the importance of sub-categories by auditors. The table 5-3 summarizes the *ordinary number* of the importance of sub-categories by auditors.

Sub-categories	**Partner & Director**	**Manager**	**Senior**	**Assistant**
	Median (Mean)	**Median (Mean)**	**Median (Mean)**	**Median (Mean)**
General knowledge	8 (8.06)	8 (7.58)	7 (6.63)	5 (5.32)
Technical knowledge	8 (8.08)	8 (8.37)	8 (7.83)	7 (6.56)
Subspecialty knowledge	8 (8.21)	8 (8.08)	8 (7.47)	6 (5.97)
Professional judgment	**9** (8.83)	8 (8.31)	7 (7.42)	6 (5.74)
Ethical requirement	**9** (8.74)	**9** (8.64)	**8** (8.06)	**7** (7.19)

Table 5-2: Descriptive statistics for sub-categories of audit seniority

Sub-categories	Partner & Director	Manager	Senior	Assistant
General knowledge	5	5	5	5
Technical knowledge	4	2	2	2
Subspecialty knowledge	3	4	3	3
Professional judgment	**1**	3	4	4
Ethical requirement	2	**1**	**1**	**1**

Table 5-3: Auditor Ranking of sub-categories for audit seniority

The descriptive statistics and auditor ranking indicates the followings interpretation:

- Sub-categories are important to all audit team members (all mean values are ranged from 5 to 9). However, there is a difference of perceived importance between varying levels of audit seniority. ➔ This interpretation supports our hypothesis that sub-categories are very important to decision making of auditors.
- To all of seniority levels, the ethical requirements always are the most important sub-category in an audit ➔ This result perfectly supports our hypothesis that ethics is the core value of auditors.
- The most important determinants for partner and director of the audit is an ability to exercise professional judgment. Ranked equally second is requirements of ethical values. Knowledge is a third one. However, the median values of sub-categories to partner and director ranged from **8 to 9**, it indicates that all determinants are almost very important to this highest seniority level.
- To middle level (audit management and senior) and junior level (audit assistant), except for ethics, the most important factor is technical knowledge. The second ranked factor, except for ethics, it is subspecialty knowledge.
- The importance of general knowledge is obviously different among varying levels of audit seniority. This is a reasonable information since general is enhanced mostly by practical experience through working experience (or seniority).
- In order to test the specific difference between seniority levels, we used the "analysis of variance across audit seniority" in the following part.

5.3.1.2 Analysis of Variance for the Sub-categories across Audit Seniority

The table 5-4 summarizes the Friedman's testes of ranking scores on the importance of sub-categories by auditors.

There was a significant difference among the distributions of the four levels of audit seniority (*p-value <0.001, and* c*hi-square statistic).* Pairwise Friedman's test (p-value<0.05), as hypothesized, revealed that sub-categories are different between different levels of audit seniority. The results show that our hypotheses are supported by the survey data.

However, contrary to the research hypothesis, there was not a significant difference in the mean of technical knowledge* (between S1 and S2, and between S1 and S3), subspecialty knowledge** (between S1 and S2), and ethical requirements*** (between S1 and S2). These results can be explained as following:

* Technical knowledge has the same distribution of scores between level S1 and S2, and between S1 and S3. This means that there is not significant difference of technical knowledge between partner and director with manager and senior. The result is reasonable to the opinion that there is no difference in technical ability at high level in an audit team. From the senior levels, all auditors are required to have very good technical ability to manage any audits. To lower levels (e.g.,: senior and assistant), the contents of technical knowledge are different and being improved by practical experience.

** Subspecialty knowledge has the same distribution of scores between level S1 and S2. This means that subspecialty knowledge is similar between level partner and director and manager. The is an interesting result that there is only "general knowledge" has a significant difference between the first top-level (partner and director) and the second top-level (manager).

*** Ethical requirements have the same distribution of scores between level S1 and S2. This means that ethical requirements are similar between level partner and director and manager. This result is reasonable since ethics is the core value of all audit team member, especially for top levels.

Variance across seniority			**Variance between seniority levels – Pairwise comparison**					
			S1&S2	**S1&S3**	**S1&S4**	**S2&S3**	**S2&S4**	**S3&S4**
Determinants	*Chi-square statistic*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*	*p-value*
General kl.	139.68	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
			(S1>S2)	(S1>S3)	(S1>S4)	(S2>S3)	(S2>S4)	(S3>S4)
Technical kl.	69.02	<0.001	***0.579****	**0.249***	<0.001	<0.001	<0.001	<0.001
			(S1<S2)	(S1>S3)	(S1>S4)	(S2>S3)	(S2>S4)	(S3>S4)
Subspecialty kl.	113.07	<0.001	***0.360****	<0.001	<0.001	0.001	<0.001	<0.001
			(S1>S2)	(S1>S3)	(S1>S4)	(S2>S3)	(S2>S4)	(S3>S4)
Prof. judgment	155.95	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
			(S1>S2)	(S1>S3)	(S1>S4)	(S2>S3)	(S2>S4)	(S3>S4)
Ethical requirement	70.86	<0.001	**0.273*****	<0.001	<0.001	<0.001	<0.001	<0.001
			(S1>S2)	(S1>S3)	(S1>S4)	(S2>S3)	(S2>S4)	(S3>S4)

Table 5-4: The Analysis of Variance for the Sub-categories across Audit Seniority

Notes: The S1, S2, S3, and S4 is correspondingly abbreviated for Partner and director, manager, senior, and assistant.

5.3.2 Importance of the Sub-categories within Audit Phases

5.3.2.1 Descriptive Statistics

Table 5-5 presents the median and mean score for the sub-categories across the audit phases. The median score for the characteristics ranged from 7 to 9. This indicates that each characteristic is important across all phases of the audit.

The relative perceived importance for each determinant within the three audit phases is shown in Table 5-5 and Table 5-6. The table 5-5 summarizes the *descriptive statistics* of ranking scores, and the table 5-6 summarizes the *ordinary number* of the importance of sub-categories by auditors.

Determinants	**Phase 1** *(Planning)*	**Phase 2** *(Fieldwork)*	**Phase 3** *(Reporting)*
	Median (Mean)	**Median (Mean)**	**Median (Mean)**
General knowledge	8 (8.00)	7 (7.33)	7 (7.44)
Technical knowledge	8 (7.53)	8 (8.37)	8 (8.14)
Subspecialty knowledge	8 (7.92)	8 (8.14)	8 (8.23)
Professional judgment	7 (7.45)	8 (8.22)	8 (8.30)
Ethical requirement	7 (7.41)	8 (8.39)	**9** (8.76)

Table 5-5: Descriptive Statistics of the Sub-categories for the Three Audit Phases

Determinants	**Phase 1** *- Planning*	**Phase 2** *- Fieldwork*	**Phase 3** *- Reporting*
General knowledge	**1**	5	5
Technical knowledge	**3**	**2**	4
Subspecialty knowledge	**2**	4	3
Professional judgment	4	3	2
Ethical requirement	5	**1**	**1**

Table 5-6: Auditor Ranking of the Sub-categories for the Three Phases of the Audit

The descriptive statistics and auditor ranking indicates the followings interpretation:

- Most of sub-categories are important to all audit phases (all mean values are ranged from 7 to 9) ➔ This interpretation supports our hypothesis that sub-categories are very important to decision making of auditors.
- The ethical requirements are the most important determinants in phase 2 and 3 (audit fieldwork and reporting) of an audit ➔ This result partly supports our hypothesis that ethics is the core value of auditors. However, the ethical requirements are the least important factor in the first phase, audit planning. It could be explained by an observed opinion (in the prior interviews) that "ethical requirements are not applicable or in audit planning, especially for middle and junior levels". In practice, there is only the top-level auditor involves directly in decision making at planning phase, for instance, decisions relating to client acceptance or rejection. However, to middle and junior levels, ethical requirements are often not applicable to their tasks in planning phases.
- General knowledge is the most important in planning because it helps auditor understand the business activities and design audit strategy.
- To each phase, the data reveals the following findings:

+ Phase 1: In the audit planning, general knowledge plays the most important since auditors apply their understandings about business activities to design audit strategies. However, the general knowledge is supported by subspecialty knowledge (second ranked) and technical knowledge (third ranked).

+ Phase 2: In the audit fieldwork, except for ethical requirements (which is the core value of an audit) technical knowledge is the most important determinants for wisdom. This finding appropriately indicates that auditors apply their technical knowledge to execute audit procedures in audit fieldwork.

+ Phase 3: In the audit reporting, except for ethical requirements (which is the core value of an audit), professional judgment plays an important role. However, subspecialty and technical are also crucial in concluding an audit.

5.3.2.2 Analysis of Variance for Sub-categories across Audit Seniority

The table 5-7 summarizes the Friedman's testes of ranking scores on the importance of sub-categories by auditors.

Variance across phases			Variance between phases – Pairwise comparison		
			P1&P2	**P1&P3**	**P2&P3**
Determinants	*Chi-square statistic*	*p-value*	*p-value*	*p-value*	*p-value*
General kl.	11.62	**0.003**	0.003	0.013	***0.466***
			(P1>P2)	(P1>P3)	(P2<P3)
Technical kl.	21.52	<0.001	<0.001	0.008	***0.739***
			(P1<P2)	(P1<P3)	(P2>P3)
Subspecialty kl.	8.51	**0.014**	***0.096***	0.15	0.071
			(P1<P2)	(P1<P3)	(P2<P3)
Prof. judgment	15.75	<0.001	<0.001	0.004	0.16
			(P1<P2)	(P1<P3)	(P2<P3)
Ethical requirement	23.94	<0.001	0.004	<0.001	0.009
			(P1<P2)	(P1<P3)	(P2<P3)

Table 5-7: The Analysis of Variance for Sub-categories across the Audit Phases

Notes: The S1, S2, S3, and S4 is correspondingly abbreviated for partner and director, manager, senior, and assistant.

The analysis of variance across the audit phases discloses the followings interpretation:

- To technical knowledge, professional judgment, and ethical requirements, there was a significant difference among the distributions of the three audit phases (p-value <0.001, and chi-square statistic). Pairwise Friedman's test (p-value<0.05), this reveals that some of sub-categories are different between different audit phases. The results show that our hypotheses are only partly supported by statistical data.
- However, to general knowledge and subspecialty knowledge, contrary to the research hypothesis, there was not a significant difference in the mean of general knowledge and subspecialty knowledge.

5.4 Summary

In Chapter 5, the results and interpretation of the survey instrument are given. The results of the Friedman's non-parametric tests showed that our hypotheses are mostly supported by statistical data. In a larger population of practicing auditors, it could be concluded that the sub-categories dissimilarly influence to audit decision making process at varying levels of audit seniority and at different phases of an audit. The finding suggests that auditors must be very flexible in order to make wise decisions in auditing. In the next chapter, the theoretical implications of the qualitative and quantitative results are interpreted.

Chapter 6 - Discussion: A Conceptual Framework for Wisdom in Auditing

6.1 Overview

The prior chapters introduced the categories, sub-categories, and results of the quantitative survey. In Chapter 6, the sub-categories, core category and those inter-relationships are interpreted and illuminated.

Thought-out this chapter, when the comments from practicing auditors are appropriate, they are showed to strengthen our arguments by depicting the close connection between the interpretation and the empirical data.

6.2 A Conceptual Framework for Wisdom in Auditing

The findings from the analyses of the interviews by grounded theory and the quantitative survey provided us with useful suggestions to develop a more comprehensive explanation of wisdom in the auditing context. The research examined that the combination of three aspects of knowledge, professional judgment, and ethical values have important influences on the decision-making processes in auditing. In practice, auditors should understand these determinants as well as their influences on audit decisions.

By taking an integral approach, the ***definition of wisdom*** in the auditing context relates to the integration of three virtues: the multi-dimensional knowledge (*epistemic virtue*), the ability of exercising "professional and phronetic" judgment in practical situations (*enabling virtue*), and ethics (*ethical virtue*). The virtues are essential determinants of the *wise* decision-making process of an audit. Wisdom is a multi-dimensional concept that implicitly embedded in the process of making audit decisions through the integration of multiple qualities.

Wise decision: In the above definition, the concept of wisdom closely attached to the concept of the "*wise decision*". Findings from the data analyses by grounded theory, auditors frequently need to make many kinds of decisions to perform theirs tasks and to manage audit engagements. To ensure a high-quality audit, auditors are compulsory to make appropriate decisions during the audit process. The empirical findings revealed that wisdom in auditing is aimed to make appropriate decisions, thereby ensuring the quality of audit processes. If an auditor could make wise decisions, s/he may perform their tasks appropriately and ensure a high quality of the audit. This means that wise decisions are associated with the appropriateness of the audit decision-making to ensure a high quality audit. To conduct an audit, auditors need to make important decisions wisely. In such a way, wisdom implicitly embedded in decision making processes.

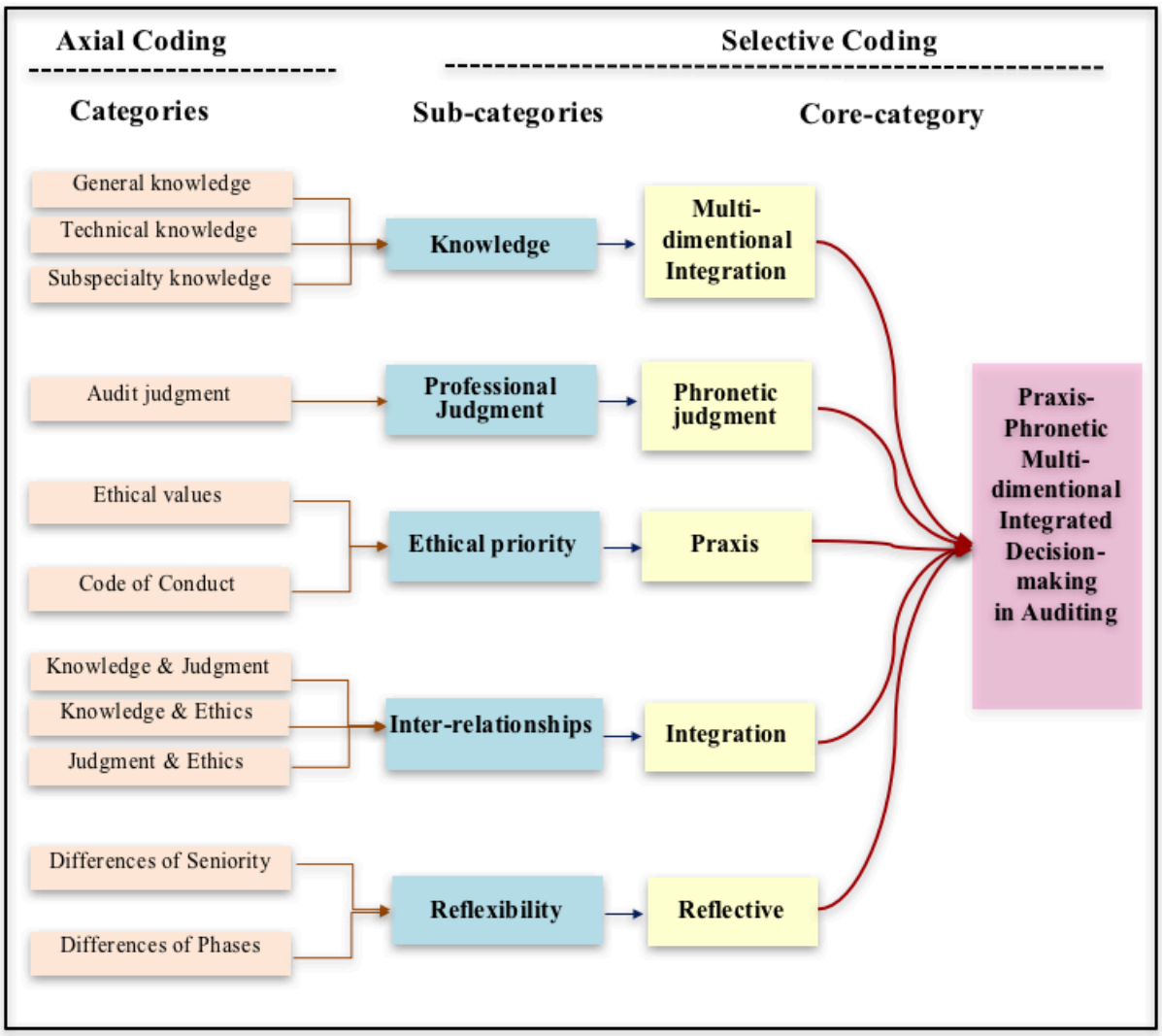

Figure 6-1: The Main Categories, Sub-categories, and Core Category

The wisdom-based theory of Praxis-Phronetic Integrated Decision Making (PPIDM) in auditing proposes an explanation of wisdom that emphasizes the priority ethical values *(praxis),* the exercise of *phronetic* judgment, and the multi-dimensional integration of epistemic aspects and qualities in decision making.

The theory underlines the integration of multiple virtues [16] (or qualities) including epistemic aspects, phronetic judgment, and praxis tendency.

[16] Virtue: a good behavior or character; a quality or a distinctive attribute or characteristic possessed by someone or something (Merriam Webster Dictionary, 2017).

Virtues	Explanation
Multi-dimensional Integration	The extent to which multiple dimensions of knowledge, including general, technical, and subspecialty aspects, are integrated in making an audit decision. Moreover, the term of *multi-dimensional* also describes the integration of multiple virtues relating to epistemic aspects, judgment, and ethics.
Phronetic Judgment	The emphasis of the enabling aspect of professional judgment. The theory proposes that practicing auditors make "phronetic judgment" in wise decision making. Phronetic judgment means that that auditors orient toward phronesis in professional life.
Praxis Priority	The description that wisdom is deeply attached to ethical values that are based on prudent actions, concerned with the rightness and properness in order to lead to good consequences for all individual and humankind.

Table 6-1: Multiple Virtues Integrated in Wise Decision Making in Auditing

The following sub-sections explains these virtues and how they influence to the wise decision making process in auditing.

6.2.1 Multi-dimensional Integration

6.2.1.1 Multiple Aspects of Epistemic Virtue

The findings imply that a wise decision making process relates to a multi-dimensional integration (MDI) of epistemic aspects in the form of general, technical, and subspecialty knowledge.

- **General business knowledge** relates to the general understanding of auditors about economics, business activities, management environments, and market trends. General business knowledge allows auditors have a general overview of business operations and market trends, and helps them to assess the business risks of audit clients in a variety of business situations. The in-depth knowledge of general business activities helps auditors identify potential business risks.
- **Technical knowledge** relates general domain understanding of accounting and auditing, and functional[17] areas. The knowledge of the general domain is the fundamental understanding of accounting and auditing such as generally accepted accounting principles (GAAP), generally accepted auditing standards (GAAS), and the flow of transactions through an accounting system, and so forth. Most of this basic information is obtained by auditors as

[17] Being *functional* means having a special activity, purpose, or task; relating to the way in which something works or operates (McKean, 2005).

part of their college program. The functional areas relate to working techniques (the using of computer-assisted audit techniques, testing procedures, tax, etc.) and accounting issues (leases, pensions, etc.). Technical knowledge is a basic foundation in performing audit tasks. Technically, it helps auditors understand audit procedures, identify and assess risks, and perform audit procedures appropriately.

- **Subspecialty knowledge** relates to understanding of particular audit industries, and/or specific clients. This kind of knowledge includes the in-depth understanding of specialized industries, and/or clients. The industrial knowledge is differentiated from the client's one. Because businesses, working in the same industry, frequently have different activities in a variety of market segments. Even though, enterprises in a similar segment are able to have different approaches to accounting and auditing methods. Therefore, subspecialty knowledge of the existing industries or clients is crucial to auditors.

This sort of knowledge is acquired through the firm's training and experiencing in specialized industries or clients. The specific understanding of the particular client and industry are compared and integrated to have a fulfilled knowledge of the audited business. Subspecialty knowledge allows auditors be able to identify potential business risks of the audited engagement.

According to Danos and his co-authors (1989) beyond general industry-specific accounting knowledge, an audit engagement requires more industry-specific business knowledge to identify potential problems efficiently and communicate with client personnel. The authors conclude that industry-specific knowledge is useful to the auditor, and audits typically cannot be completed without such specialized knowledge because business trends are frequently unique to a given industry. Audit firms have to attain their industry-specific business knowledge in order to attract and retain clients. To this point, the research re-confirmed the importance of subspecialty knowledge.

In summary, an expert auditor ideally has all three of the above aspects. However, rarely is there one individual who possesses all of the specialized areas of knowledge required for a specific audit. Auditors collaborate in team allocation and support with each other. Thus, in such areas, knowledge transfer across individual auditors is usually required. Partners are thus experts with the multi-dimensional integration of knowledge. They are key people who keep and present the audit firm's wisdom with time-tested knowledge over a long period.

6.2.1.2 The Integration of the Epistemic Aspects

Research findings indicated that auditors, in a wise decision making, need to combine the three epistemic aspects. Although the degrees of epistemic-virtue possession may be different between the varying hierarchical levels (assistant, senior, manager, director, and partner), and the requirements of general, technical, and subspecialty knowledge may vary according to different audit tasks, they are essential to an audit. Furthermore, the practicing auditors

(interviewees) emphasized the integration of multi-dimensions of all of the epistemic aspects is necessary in providing the in-depth understanding of practical situations.

> *Besides the general business and technical knowledge, the particular understanding of a specialized industry is very important in order to identify risks. These knowledge helps auditors understands the practical flow of transactions and accounting treatments. Therefore, auditors need to have all types of knowledge in decisions making (Interviewee 22).*

The integration of epistemic aspects plays an important role in helping auditors assure the quality of their audits. The integration of three aspects of epistemic virtue are showed in the Figure 6-1:

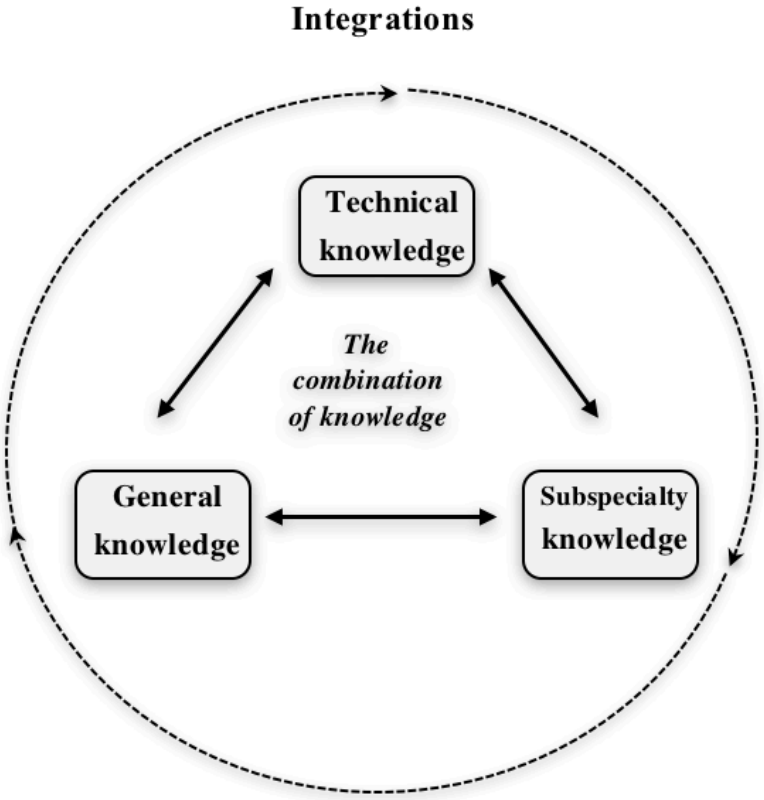

Figure 6-2: Multi-dimensional Integration (MDI) of epistemic Virtue

Although the relationship between knowledge and wisdom is complex, this finding re-confirmed the importance of knowledge to wisdom. However, knowledge or epistemic virtue is only one of determinants of wisdom. Similarly, prior study indicated that knowledge is necessary but not sufficient for wisdom (Bierly, 2000). “A person would not be considered wise if one is not knowledgeable, but knowledge does not always make one wise” (Bierly,

2000, p. 604). The author explained that knowledge can be viewed as a double-edged sword with respect to wisdom because knowledge provides us with the materials to enable us to derive more meanings. However, knowledge can inhibit our pursuit of wisdom if it acts to obscure perspective. Although knowledge implies a deep understanding of information concerning a topic, and increasing one's knowledge provides the potential for enhancing wisdom, knowledge is not sufficient to attain wisdom (Sternberg, 2003).

Beside, our findings are also similar to the explanation of Maxwell (1984) when he draws a bolder line between knowledge and wisdom. Maxwell stated that knowledge is the result of rational inquiry whereas wisdom includes knowledge but goes further to incorporate "judgment of value" to help us devise better ways of living, better institutions, customs, and social relations (Maxwell, 1984, p. 66).

6.2.2 Phronetic Judgment

The second virtue is relevant to the ability to exercise professional judgment. This aspect could be viewed as the enabling virtue of the auditor. Because audits are conducted according to a risk-based approach, auditors have to make decisions under potential risks and uncertainties. This means that, in order to reach a conclusion or make a decision, auditors need to judge potential uncertain facts and circumstances in a professional way. Therefore, the ability to exercise a quality audit judgment is critical.

An auditor's professional judgment is relevant to the application of their accumulated knowledge, or their epistemic virtues. When an auditor makes quality judgments, he or she competently applies their knowledge to make decisions that are appropriate at the time of the judgment. To make a judgment wisely, the epistemic virtue is necessary, but the ability to apply knowledge and judge the situation is also indispensable. In practice, an auditor needs appropriate knowledge but it is impossible to make appropriate decisions for specific cases without the ability to exercise professional judgment.

In light of Aristotle's phronesis, to describe the enabling aspects of professional judgment in practice, this study proposes that practicing auditors make "*phronetic judgment"* in wise decision making. *Phronetic judgment* implies that auditors, in making professional judgments, orient toward phronesis in professional life.

Phronesis is referred to as practical wisdom that implies the significance of reflection. Phronesis emphasizes reflection as a means to inform wise action, to assist one to navigate the variable contexts of practice, and as directed toward the ends of practical wisdom (Kinsella, 2012).

6.2.3 Praxis Priority

The third virtue involves the ethical aspect of an auditor in making decisions in an audit. The empirical analyses and survey result indicated that *"ethics is the core value to auditors"*.

Furthermore, ethics is the first priority virtue to a person who want to become an auditor. A high ethical perception help auditors continuously learn, update, and improve themselves.

> *Ethics is the core value in auditing. If a person who is not qualified ethical requirements in auditing, s/he should not be an auditor. Because it is impossible for that person to perform their tasks appropriately without a strict compliance with ethical requirements (Interviewee 24).*

The moral aspect is reflected in the requirements of code of ethics and professional conduct of an audit. Moreover, in accordance with the empirical case study and literature review, wise decision-making should consider a diversity of values as well as the interests of the community as a whole. Wisdom differs from accumulated knowledge (Intezari and Pauleen, 2013b) because smart people always try to understand the circumstance, adapt their knowledge and make proper decisions in the direction of right ends.

To describe the highly priority of ethical values in wise decision making, the theory uses the Greek word "*praxis*". The action is praxis whenever it is based on mindful decision and its role is to improve the world (Kodish, 2006). In the certain situation, praxis describes practical reasoning about suitable and keen actions (Kemmis, 2012). It also is related to morally committed, good conduct, and socially responsible (Küpers and Pauleen, 2013; Russell and Grootenboer, 2008).

Praxis means that if an action which is done in practice is suitable and appropriate then there are proper consequences that will be given to the involved or affected people (Kemmis and Smith, 2008). Therefore, *praxis* is means that we do things for the goodness of both single individuals and whole humanity.

Summarily, from the above explanations, in this research praxis may be used to describe as a form of wise thinking that:

- is based on practical and prudent actions
- involves right actions in a specific context
- is related to practically right and proper results,
- leads to good consequences for all

Wisdom is considered to be relevant to ethics (Robinson, 1990; Rowley and Slack, 2009) and is a "morally committed action" (Russell and Grootenboer, 2008). Bierly et al. (2000) underlined that wisdom is an action-oriented and it is related to the of using knowledge in planning, making of decisions, and executing.

In this sense, the empirical findings show that wisdom is deeply attached to ethical values. When interviewees were asked "What are the results of *a wise decision* in auditing", most answers referred to rightly appropriate course of actions that could lead to the goodness for all

related parties as a whole. The interviewee shared this attitude toward the ultimate goodness for all relevant parties.

The praxis priority reflects the responsibility of auditors as "gatekeepers" to protect the investing public. Prior research explained the gatekeeping function existed to improve the efficiency of the markets by allowing financial statement users to take for granted that financial reports were trustworthy (Miller and Bahnson, 2004).

6.2.4 Inter-relationship between Epistemic, Judgmental and Ethical Virtues

To explain on how an auditor is able to make wise decisions, the PPIDM theory presents a confluence of the three important virtues including epistemic aspect, enabling of phronetic judgment, and praxis priority in the auditing context. However, these three virtues not only impact the process of making decisions separately; they also interact with each other mutually. These virtues are considered as determinants of wisdom and related together as illustration in the Figure 6-2.

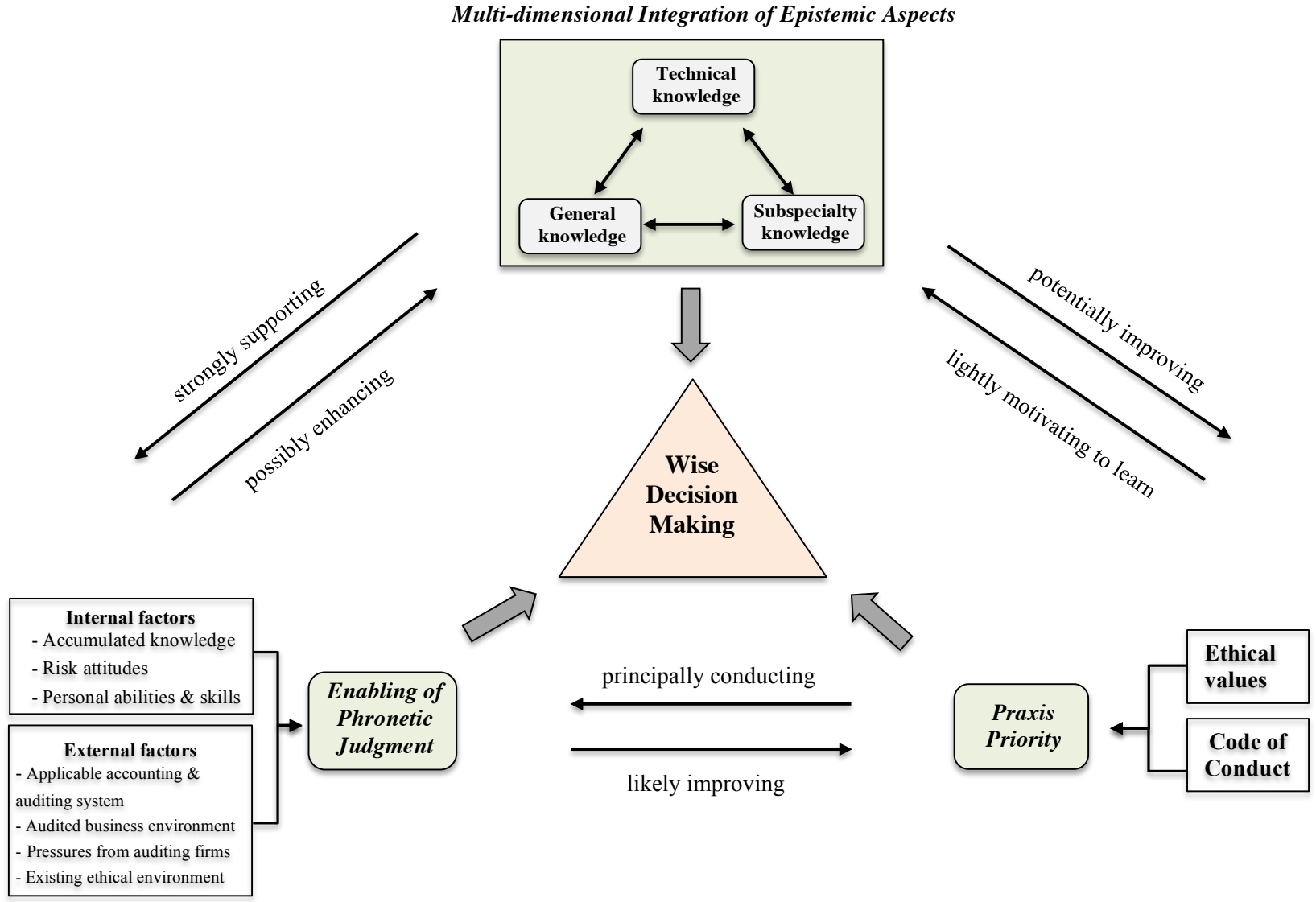

Figure 6-3: The Integration of Important Virtues for Wise Decision Making in Auditing

Although the virtues influence to wise decision making in auditing in different ways base on the varying levels of seniority and and audit phases, they have important inter-relationships.

The proposed theory differentiates from the prior literature. The theory reveals knowledge is a crucial basis for decision making in auditing; however, prior knowledge may be insufficient to deal with emerging phenomena. To have a wise response, it is vital for an auditor to apply knowledge properly and judge the given situation professionally and ethically.

6.3 Summary

In the chapter, we proposed and explained the conceptual framework for wisdom in auditing. The theory is constructed and supported by the theoretical implications of the research findings. Given the above discussions, the following final chapter concludes the research by presenting practical and academic implications, pointing out the limitations, and indicating future directions for research.

Chapter 7 - Conclusions

7.1 Introduction

This study was to investigate the wisdom concept and its roles in auditing. Employing GT methodology, we developed a conceptual framework for wisdom in auditing.

In Chapter 4, the categories and sub-categories that revealed from empirical data were identified. The Chapter 5 presented the results of the quantitative test by survey instrument. In the following chapter, the findings of both qualitative and quantitative parts are discussed in the developing of the conceptual framework for wisdom in auditing.

This chapter concludes the study. We firstly review the research problem, objectives, and findings, thereby discussing the practical and academic implications. We also point out the current limitations of the study and suggests future directions for research. After a chapter summary, we bring to an end of the dissertation with a conclusion statement.

7.2 Research Review

Despite the significant advances in management of knowledge and information, auditors and audit firms have to encounter with great challenges in making accurate decisions, especially in a high pressure working environment like auditing.

Many crises and scandals resulting from the failure of decisions are able to be seen in the past, e.g. the Enron (2001), WorldCom bankruptcies (2002), Tyco International (2002), Lehman Brothers (2008), Olympus scandal in Japan (2011), and so on. On the one hand, recent financial crises, the contemporary complex and rapidly changing business environment has altered the perspectives of practical and academic researchers from the improving of knowledge and information towards the enhancing of wisdom.

In a rapidly changing environment, although organizations focus on improving knowledge in response to changes, our knowledge yesterday could be irrelevant or insufficient tomorrow. Knowledge may not be sufficient when dealing with emerging and unforeseen situations since knowledge tends to be past-oriented, while emerging situations are future-oriented (Intezari and Pauleen, 2012).

This study proposed a new approach focusing on wisdom in auditing by conducting a mixed adoption of qualitative and quantitative research. Research findings theoretical resulted implications for developing of the wisdom-based theory of Praxis-Phronesis Integrated Decision Making in auditing.

7.3 Practical Implications

The implications of the wisdom-based theory of PPIDM to practitioners including practicing auditors, audit firms, policy makers, standard setters (in accounting and auditing) are concerned with the improvement of these following aspects: educational and managerial decisions (developing wisdom).

- Education: The study suggests the demand for training programs toward the conceptiual framework for wisdom in auditing. The research points out the virtues that are connected to wisdom and embedded in audit decision making processes. This finding offers an new approach that directs to wisdom-based teaching systems for educational programs at university, in-house training, or professional education programs. Therefore, the study can help both auditors and auditing firms to develop educational and training schedules. In so doing, people in an auditing firm can understand more about their decision-making process and view it as an integral approach to resolving complicated audit situations.
- Knowledge management system: KM systems focus on the increasing of knowledge creating, accessisng, and sharing (Rowley, 2006). However, knowledge may not be sufficient when dealing with emerging and unforeseen situations since knowledge tends to be past-oriented, while emerging situations are future-oriented (Intezari and Pauleen, 2012). In this sense, the wisdom-based theory supplements KM system in audit firms by offers an integrative approach of multi-dimensional aspects of knowledge. The proposed conceptual framework considers the crucial role of knowledge integration, and highlights the integration of knowledge with professional judgment and ethical values.

7.4 Academic Implications

This study is one of initial research on wisdom in knowledge intensive professional services, especially auditing service. The study addresses the limitations in the literature by investigating the wisdom concepts, its roles, and its associated virtues in auditing. The empirical findings enlarge the current understandings of wisdom, judgment-decision making, and KM literature.

7.4.1 Judgment Decision Making Research in Auditing

JDM studies on auditing concerns with the behavior of accountants and auditors themselves. Since the 1960s, the JDM research developed from many perspectives with varying paradigms (Chapter 2). Despite recognition of the importance of knowledge and wisdom in auditing, there have been few empirical studies that have explained how this emergent topic. This study confirms on recent studies of the important role of knowledge in audit decision making. Furthermore, it expands and explains the need for integration of multi-dimensional aspects of knowledge as well as the integration of auditors' virtues that associated with wisdom in decision making.

7.4.2 Knowledge Management Research in Auditing

In the context of the auditing service, Nguyen et al. (2015) proposed CAS model to represent the transformative processes of data, information, and knowledge under the instruction of wisdom in auditing. According to Nguyen et al. (2015), wisdom, in auditing context, is defined as "a high level of auditing knowledge and the capacity to make professional judgment." Wisdom has a two-way interaction with the audit phases. First, wisdom instructs auditors as to how to conduct a high-quality audit. Second, wisdom is accumulated through the practical implementation of the three phases.

Although the research by Nguyen and her co-authors (2015) emphasized that wisdom is crucial because it is the cornerstone upon which to conduct an audit and it helps auditors to perform their tasks appropriately, it was still far from being able to give a clear definition of wisdom or an in-depth explanation of how auditors apply it. This study extends the literature by providing a new definition that emphasizes the crucial roles of ethical values to wisdom. Our research reveals that "ethics is the core value in auditing". Moreover, the findings also strengthen the awareness of crucial virtues associated with wisdom and illuminates the relationships among those virtues.

7.4.3 Research on Wisdom and DIKW

The data – information – knowledge – wisdom hierarchy (DIKW), also called the Wisdom Pyramid, is a fundamental and widely recognized model in knowledge literature. The pyramid is used to contextualize data, information, knowledge, and wisdom, with the purpose of describing the transformation of knowledge-related processes involved in an entity (Figure 7-1). In the pyramid, it is implicitly assumed that data can be used to create information, information can be used to create knowledge, and knowledge can be used to create wisdom.

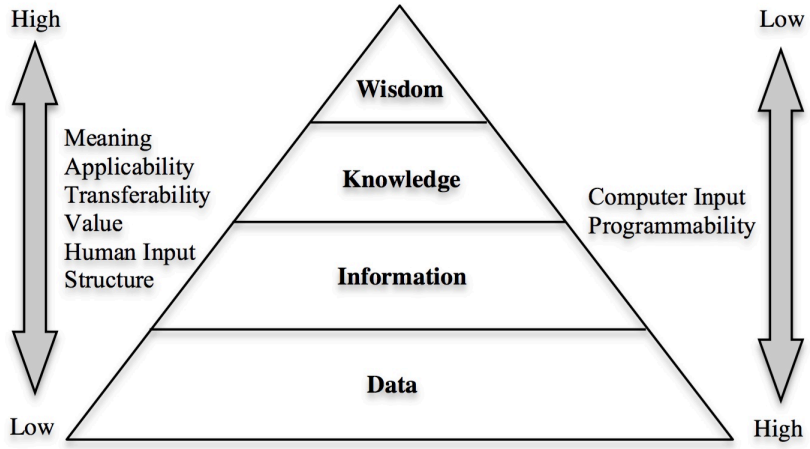

Figure 7-1: The Wisdom Hierarchy

This conventional research of the wisdom pyramid is unable to express all the nature of wisdom. This research reveals an extensive comprehension of wisdom concept as well as its crucial virtues. The study identifies the critical role of other virtues including judgment and ethics. It reconfirms and reveals that wisdom is not a stockpile of knowledge. Furthermore, the study broadens and deepens the phronetic applications and praxis priority in wisdom studies.

7.5 Research Limitations

The limitations of this research is associated with the sample composition. There is a limitation associated distribution of gender among interviewees. To create a diverse sample of interviewees, the interview list got a significant difference of gender proportion. The male proportion of (7 out of 25) participated is smaller than the female group (18 of 25). This may be a result of trying to have a diverse distribution of seniority.

7.6 Directions for Future Research

This research highly concentrates auditing service, therefore, the application of the theory to other professional services may be still questionable. In order to expand and generalize the wisdom-based theory of PPIDM for a wide-range of knowledge-intensive business services (KIBSs), we should conduct more case studies in other KIBS such as law, consulting, engineering consulting, marketing, and so on. Thus, conducting more case studies on other organizations of KIBS such as consulting firms, law firms, or engineering firms to extend the possibility of the theory is suggested for future research.

7.7 Conclusion Statement

Despite the recognition of the importance of wisdom in auditing, prior research has not explained how auditors apply their wisdom in the audit process. Therefore, it is essential to conduct empirical research on wisdom to help auditors carry out high-quality audits. This research provides a coherent review of the literature on major research paradigms relating to wisdom and audit literature. Although wisdom and judgment decision making are abstract and polyvalent concepts that have many meanings and functions in different domains, this research aims for a comprehensive interpretation that elucidates these concepts in the auditing context.

On the basis of the empirical findings of the qualitative and quantitative research, this research explicitly defines the concept of wisdom and proposes a wisdom-based theory of Praxis-Phronesis Integrated Decision Making (PPIDM) for the decision making in auditing.

This study provides these significant implications: literarily understanding of the wisdom concept, its associated virtues and their relationship in auditing; helping auditors and audit firms with their roles; and ensuring better assurance services for society.

First, although there have been many studies on the auditing process, they have mainly focused on practical aspects or technical issues. The prior studies view auditing as a policy-capturing pyramid, an information-based or knowledge-based process rather than a wisdom-based one. Therefore, defining the theoretical aspects of wisdom and its roles in auditing would be a significant theoretical contribution to the wisdom and auditing literature. The empirical findings also enhance on the awareness of judgment-decision making and KM literature.

Second, this study should help both auditors and auditing firms to develop educational and training schedules. Professional auditors possibly understand their important virtues that associated to wisdom, and apply them as in an integrated process to resolve complicated situations. Moreover, individual auditors can enhance their competencies in carrying out routine tasks with in-depth understanding of knowledge and wisdom. Auditing firms can probably improve their training programs that are focused with reference to wisdom according to the theory.

Finally, the theory aims at helping auditors ensure the truthfulness and fairness of financial information. Auditing firms in projects with time limits and the need for very raw data to be analyzed must co-operate with the management of the client company to ensure that they have released financial information of the highest reliability to society.

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Appendices

Appendix 1: List of Interviewees

No	Position	Age	Experience (years)	Gender	Interview duration (minutes)	Date
1	Senior	35	5	Male	90	Oct-16
2	Manager	33	8	Female	60	Oct-16
3	Manager	32	9	Female	60	Oct-16
4	Senior	32	5	Female	55	Oct-16
5	Senior	32	5	Male	64	Nov-16
6	Senior	32	5	Female	55	Nov-16
7	Senior	33	5	Female	65	Nov-16
8	Senior	30	7	Male	100	Nov-16
9	Senior	33	2	Female	90	Dec-16
10	Senior	33	5	Female	65	Dec-16
11	Manager	32	8	Female	65	Dec-16
12	Senior	32	5	Male	90	Dec-16
13	Manager	36	9	Male	60	Dec-16
14	Senior	32	5	Female	50	Dec-16
15	Senior	32	5	Female	70	Dec-16
16	Assistant	29	2	Female	60	Dec-16
17	Senior	32	5	Female	70	Dec-16
18	Manager	32	6	Female	100	Dec-16
19	Senior	32	6	Female	90	Nov-16
20	Manager	32	9	Female	80	Dec-16
21	Manager	33	9	Female	50	Dec-16
22	Manager	34	9	Female	65	Jan-17
23	Manager	35	10	Male	55	Jan-17
24	Assistant	29	2	Female	50	Jan-17
25	Director	33	12	Male	60	Jan-17

Appendix 2: Interview Guideline

Data Collection & Analysis Rounds	Interview Questions
Round 1: *To understand how wisdom is perceived in auditing by interviewees.*	**Wisdom and its relevant concepts** - What do you think if someone ask you about the wisdom in auditing? - Could you give examples from the practical auditing processes? - If an auditor has wisdom, as you explained, how do you think wisdom relates to his/her tasks, roles, and decisions in an auditing process? **Elements are relevant to wisdom** - What are factors or components possibly associated with wisdom in auditing? - What are those factors or components in audit practice? Could you please give me some examples? - How do these concepts relate together? What are relationships between/among these concepts? **Wise decision-making in auditing** - How do you think about a good decision in auditing? - What are the results of "a wise decision" in auditing? - In audit context, why do you think a decision is wise or unwise? - Do you think that wise decisions are able to be made in auditing? - What are important components to make a sound/good decision in auditing? - How do these above components of wisdom relate to the process of making audit decisions? - If an auditor needs to make an important decision, what are the abilities/capacities you think he/she needs to have? - In your process of self-learning, how can you improve your abilities?
In round 1, the interviews were conducted with 6 auditors. Then, we analyzed the transcripts in accordance with coding process. The analysis helped to identify potential categories and sub-categories that are relevant to wisdom in auditing.	

Appendix 2: Interview Guideline *(continued)*

Data Collection & Analysis Rounds	Interview Questions
Round 2: *To investigate the categories and sub-categories that emerged from the data analysis in round 1.*	The below questions were asked along with prior questions: **The aspects of knowledge** - What types of knowledge do you think an auditor needs to have/attain in auditing? - What are the types of knowledge? Why do auditors need to have them? Would you please give examples from the audit practice? - How do auditors attain and improve these types of knowledge? - How do these types of knowledge relate together? **Professional judgment** - What is professional judgment in auditing? - Why do auditors need to exercise professional judgment in auditing? - If an auditor makes decisions without professional judgment, what could be happened? - What are factors influence to professional judgment of an auditor? - How do you improve your judgmental ability? **Ethics and the code of conduct** - Do you think ethical aspects are important for auditors? - Why do you think so? - How do you think ethical aspects influence to your audit decisions? - What do you think if an audit decision is made unethically? - Who needs to have good ethics in audit team? Such as: partner, director, manager, senior, and staff. - How are ethical aspects different among audit team members?

In round 2, the interviews were conducted with additional 5 auditors by randomly choice from the interview list. We also updated new questions with previous 5 auditors in round 1. Then, we analyzed the transcripts in accordance with coding process. The analysis helped to continue identify potential categories and sub-categories that relate to wisdom in auditing.

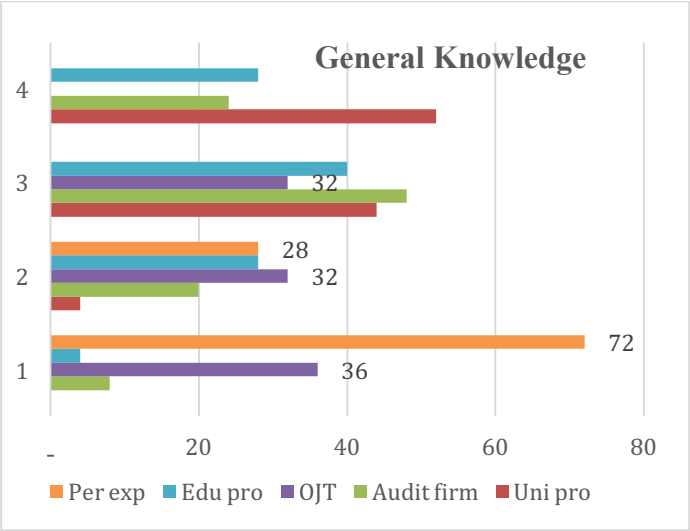
Appendix 2: Interview Guideline *(continued)*

Data Collection & Analysis Rounds	Interview Questions
Round 3: *+ To continue identify the categories and sub-categories that emerged from the data analysis in round 1 and 2;* *+ And, to investigate potential relationships among the sub-categories*	The below questions were asked along with prior questions of round 2: **The inter-relationships among knowledge, professional judgment, and ethical requirements** - Do we have any relationship between knowledge, professional judgment, and ethical requirements in making a wise decision? - What are the possible relationships among them? **The different influences of knowledge, professional judgment, and ethical requirements to decision making in auditing.** - How do knowledge, professional judgment, and ethical requirements influence to decision making in auditing? - How are they different among audit team members? - How are they different among audit phases?
Round 4: *+ To continue identify the categories and sub-categories that emerged from the data analysis in round 1, 2 and 3;* *+ And, to deepen the relationships among the sub-categories*	The below questions were asked along with prior questions of round 2 and 3: **The inter-relationships among knowledge, professional judgment, and ethical requirements** - Why do we have those relationships? Would you please give examples from the audit practice? **The different influences of knowledge, professional judgment, and ethical requirements to decision making in auditing.** - Why do we have the different influences in accordance with audit seniority and phases?

In round 3, the interviews were conducted with 9 auditors. And, in round 4, the interviews were conducted with 5 auditors. Then, we analyzed the transcripts in accordance with coding process (see Figure 3).

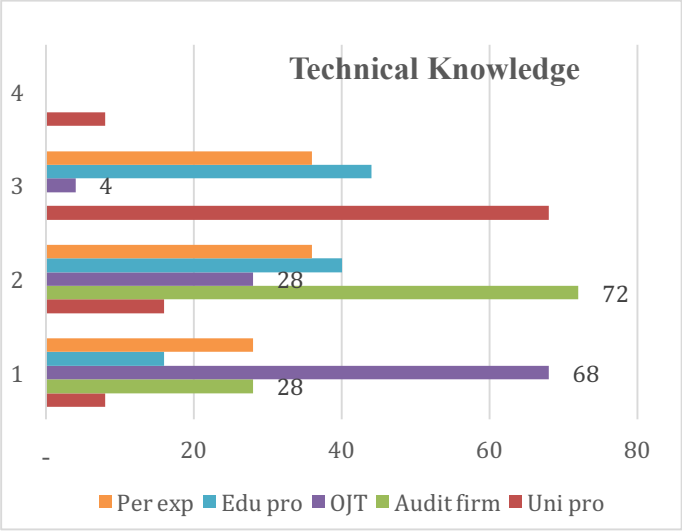
Appendix 3: The Sources of Knowledge and Professional Judgment

The evaluation on the importance of the sources for the attaining of knowledge and professional judgment were showed in the following charts and tables:



General knowledge

Sources/ Importance	1	2	3	4
Personal self-studying	72	28	-	-
Educational programs	4	28	40	28
On-the-job training	36	32	32	-
Audit firm	8	20	48	24
University programs	-	4	44	52

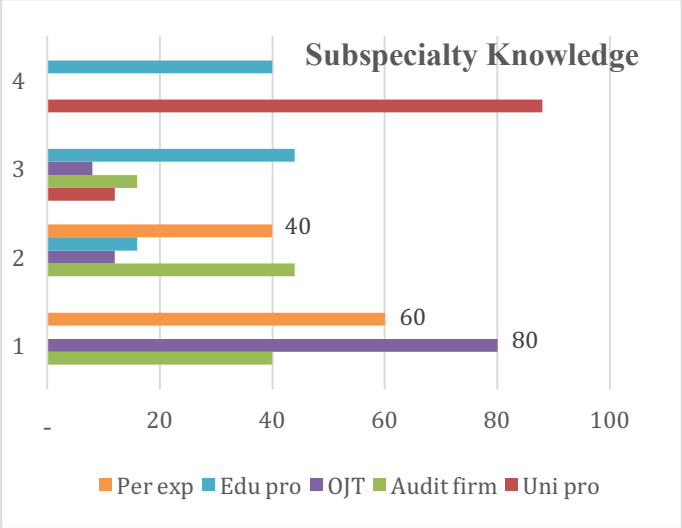


Technical knowledge

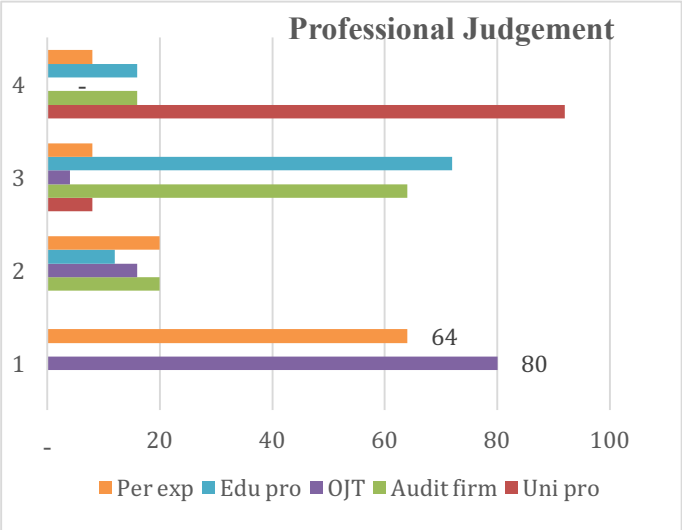
Sources/ Importance	1	2	3	4
Personal self-studying	28	36	36	-
Educational programs	16	40	44	-
On-the-job training	68	28	4	-
Audit firm	28	72	-	-
University programs	8	16	68	8

Notes:

1: *The most important*; 2: *Very important*; 3: *Meaningful and useful*; 4: *Not useful*.



Subspecialty knowledge				
Sources/ Importance	**1**	**2**	**3**	**4**
Personal self-studying	60	40	-	-
Educational programs	-	16	44	40
On-the-job training	80	12	8	-
Audit firm	40	44	16	-
University programs	-	-	12	88



Professional judgment

Sources/ Importance	**1**	**2**	**3**	**4**
Personal self-studying	64	20	8	8
Educational programs	-	12	72	16
On-the-job training	80	16	4	-
Audit firm	-	20	64	16
University programs	-	-	8	92

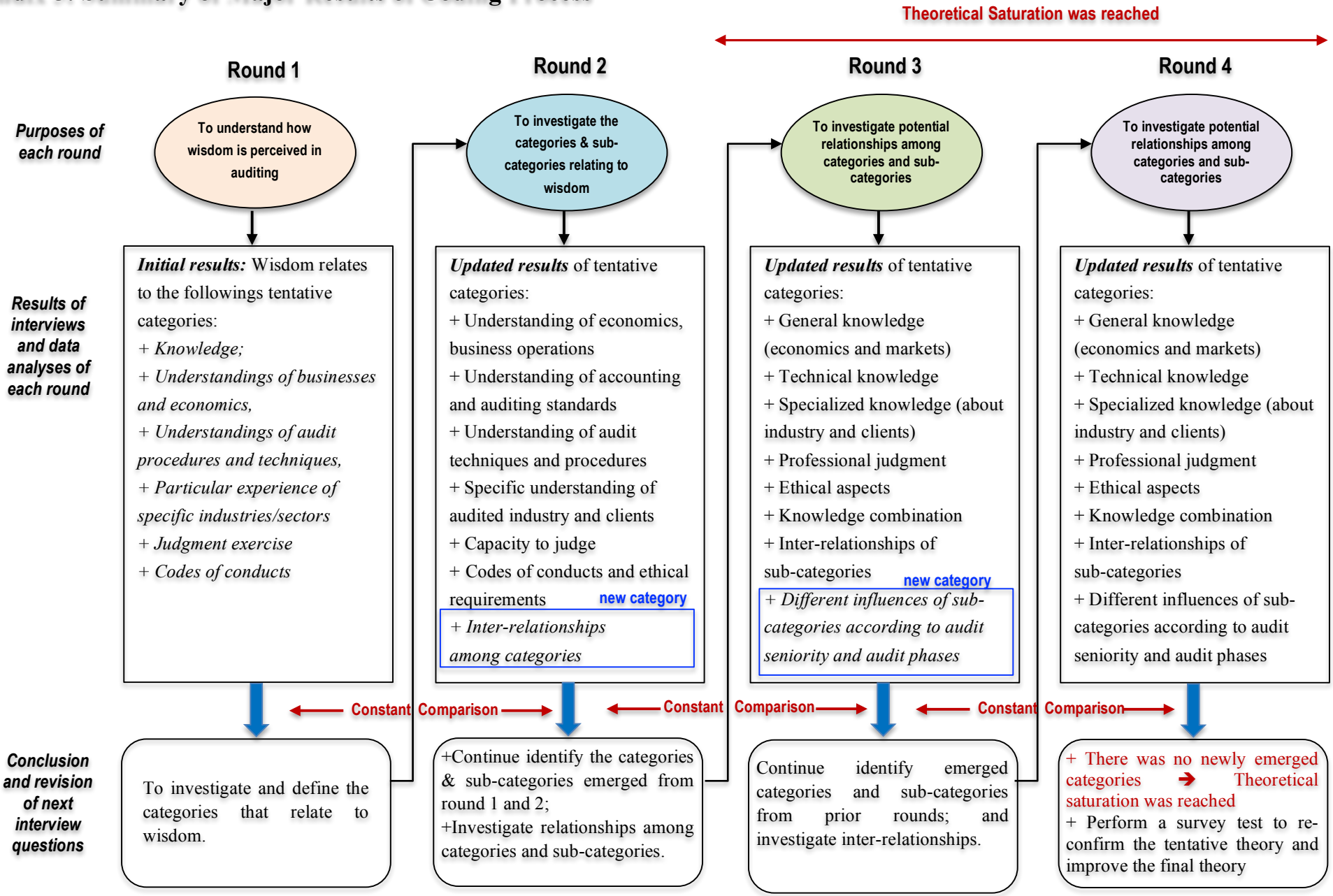
Notes:

1: *The most important*; 2: *Very important*; 3: *Meaningful and useful*; 4: *Not useful*.

Appendix 4: The Summary of Final Coding Results

Coding Process			
Open Coding	**Axial Coding**	**Selective Coding**	
Codes	**Categories**	**Sub-core Categories**	**CORE Category**
General understanding of auditors about economics, business activities, management environments, and market trends	**General knowledge**	**Knowledge**	**The integration of multi-dimensional aspects of knowledge**
The fundamental understanding of accounting and auditing (general domain knowledge)	**Technical knowledge**		
The functional areas relate to working techniques and accounting issues			
The in-depth understanding of particular audit industries	**Subspecialty knowledge**		
The in-depth understanding of specialized areas with specific clients			
Professional judgment on audit decisions relates to the identification and assessment of risks, choices of appropriate audit procedures, solutions of audit issues, audit opinions, and so forth	**Judgment**	**Professional judgment**	**Phronetic judgment**
Judgment relates to accounting problems, e.g., making of provisions or accruals, going concern assessment, impairment of assets, and so on.			
Ethical values are is the first priority in decision making process	**Ethical values**	**Ethics**	**Praxis priority**
Auditors needs to follow codes of conduct in auditing	**Codes of conduct**		
The empirical findings indicated that knowledge, professional judgment, and ethics were differentiated from each other according to the audit seniority	**Seniority Difference**	**Different Influences**	**Phronetic application of important virtues**
These factors also influence to audit decision making process in different ways at varying audit phases	**Phase Difference**		
Knowledge is a basic foundation and considerably supports the exercise of professional judgment by auditors; on the contrary, judgment may help auditor enhance their knowledge in some cases	**Knowledge & judgment**	**Inter-relationships**	**The integration of virtues that associated to wisdom**
Sometimes, good knowledge could help auditor improve their ethical values, and good knowledge could help auditor improve their ethical values	**Knowledge & Ethics**		
Ethics is a foundation in making audit judgment, and judgment may increase ethical behaviour in some extent.	**Judgment & Ethics**		

Appendix 5: Summary of Major Results of Coding Process



Appendix 6: Significant Quotations & Attributable Codes for Each Round

Questions	Example of Quotations	Categories	Tentative Sub-categories
Round 1 ***(6 interviews)*** **To understand how wisdom is perceived in auditing**	+"Knowledge is the first thing an auditor must have …"(Int. 3)	Knowledge	***Knowledge, understandings and experience***
	+"The general understanding of business and operations is very important in auditing for making wise actions?" (Int. 1) +"Knowledge of businesses and economics is very important in .. helping auditors identify the potential risks, and examining the reasonableness of clients' business operations.."(Int. 5) +"General understanding is the foundation and gives a general picture" (Int.2)	Understanding of businesses and economics	
	+"Technical knowledge is the base for audit profession .If we don't have this kind of knowledge, we cannot become auditor" (Int. 2) +"An auditor who are good at technical knowledge, he or she will know how to conduct audit procedures appropriately and efficiently" (Int. 5)	Understanding of audit procedures and techniques	
	+"Audiors need specialized knowledge in auditing.." (Int. 5) +" Industrial knowledge and experience is very important for wisdom.." (Int. 6) + "Particular understanding about business sectors is very crucial, however, it depends on the difficulties of each audit engagement…" (Int. 3)	Specialized, or particular understanding and experience	
	+"Judgement capacity impacts to auditor's actions and decisions…" (Int.5) +" The exercise of judgment is very important in auditing. Auditors usually exercise their professional judgment in every phases of audit processes." (Int.4)	Capacity to exercise of judgment	***Judgmental capacity***
	+"The guidance of codes of conduct in auditing is crucial to auditors actions in practice …" (Int.6) + "Since auditors must be independent and confidential to ensure the audit quality. However, ethics impacts to auditor's decision making according to their seniority" (Int.5)	Codes of conducts in auditing	***Codes of conduct, ethics, independence***

Appendix 6: Significant Quotations & Attributable Codes for Each Round (cont.)

Questions	Example of Quotations	Categories	Tentative Sub-categories
Round 2 ***(5 interviews)*** **To investigate the categories & sub-categories relating to wisdom that emerged in round 1**	+"General understanding is very important in audit decision making…If we don't have knowledge of businesses, we may be an auditor but the quality is questionable since we don't have flexibility." (Int. 7) +"Understanding of market is very important for an auditor; especially, from senior level to higher levels, since it help us to have business sense." (Int.8) + "General knowledge helps auditors identify and access risk as it provides us the tendency of risks and frauds." (Int.10)	Understanding of economic and business operations/activities	***Knowledge and its aspects***
	+"Auditors must understand all accounting and auditing standards, applicable regulations, and so on." (Int.11) +"Good understanding of standards is necessary to deal with audit issues." (Int.8)	Understanding of accounting and auditing standards	
	+"Audit techniques is a foundation in performing audit procedures." (Int. 7) +"As an auditor, you must master audit techniques." (Int. 8) +"To a professional job like audit, technical ability is crucial in daily tasks." (Int.10)	Understanding of audit techniques and procedures	
	+"Specific understanding of the audited industry can help us get working principles... Then, we can understand about the audited client's environment easily." (Int. 7) +" We have many different industries and markets,.. we need specialized knowledge of the particular audited market to deal with their audit procedures." (Int. 8)	Specific understanding of the market, environment, and activities of the being audited industry and clients	
	+ "We need to have ability to apply and jugde practical situations." (Int. 9) +"Auditors must have judgment relating to risks identification and assessment in a professional way."(Int. 8) +"Auditors …need to assume and exercise professional judgment to strategies." (Int 7).	Capacity to judge professionally	***Capacity to expercise judgment professionally***
	+"Ethics is the first priority thing in auditing … since, ethical compliance is a compulsory demand." (Int. 9) +"Ethical requirements are highly demanded to all audit team members." (Int 7). +"Ethics is very important to an auditor .."(Int. 11).	Codes of conducts and ethical requirements in auditing	***Ethics and Codes of conduct***
	+"The better knowledge we have, the better judgment we can make." (Int. 8) + "Good knowledge probably improves ethical values (Int. 11)	Inter-relationships among categories	***Relationships among categories***

Appendix 6: Significant Quotations & Attributable Codes for Each Round (cont.)

Questions	Example of Quotations	Categories	Tentative Sub-categories
Round 3 ***(9 interviews)*** **+ To continue identify the categories and sub-categories that emerged from the data analysis in round 1 and 2;** **+ And, to investigate potential relationships among the sub-categories**	+ "General knowledge of markets helps auditors in identify and evaluate risks." (Int.12) + "General knowledge is used for evaluating the reasonableness of the FS, e.g. *Does the FS or client forcast make sense*?" (Int.13) +"Without general knowledge, it may lead to high risk..." (Int.17)	General knowledge of economics, markets, and businesses	***Knowledge and types of knowledge***
	+"Technical understanding helps auditors make audit strategies, classify risks, perform audit procedures .." (Int. 17) +"All audit team members must have technical ability..." (Int. 18) +"Without technical knowledge, we can't be an auditor.." (Int. 15)	Technical knowledge (accounting and auditing standards, & audit procedures)	
	+"Specialized knowledge of the audited industry is important, audit firms often provide training on specialized sectors..." (Int.12) + "Auditors need to have particular knowledge about the audited market and clients … to see potential risks ..." (Int. 13) +"Each client has its own features. Auditors need to know these characteristics when auditing a client." (Int.18)	Specific understanding of the being audited industry and clients	
	+"When evidence-based or standard-based is insufficient, judgment-based is applied." (Int. 12) +"We usually need to initially make judgment. Then, we need to re-visit our judgment when we have enough information." (Int. 13)	Professional judgment	***Professional judgment***
	+"The ethical requirements are demanded to all levels …unethical actions may cause serious results ..." (Int.12) + "Ethics is very important and impacts to each level differently"	Ethical aspects	***Ethical requirements***
	+"Combined knowledge is crucial for making judgment."(Int. 13) +"The applied knowledge of an auditor is the combination of the separate types of knowledge." (Int. 12) +"A good team with all sufficient knowledge can find out audit issues.., otherwise, the quality will be low." (Int. 13)	The combination and association of knowledge aspects	***Relationships of knowledge types***
	+ "Knowledge types support each other in audit process." (Int. 15) +"Knowledge strongly influences to auditors' judgment making process. It is a basis for judgment." (Int. 18) +"Knowledge has a strong impact to .. judgment." (Int. 19) +"Judgment helps improve knowledge…" (Int. 22) +" Ethics can help auditor enhance knowledge " (Int. 20)	Inter-relationships sub-categories	***Relationships among sub-categories***
	+"The required knowledge for each level are different."(Int. 17) +"Each level has different levels of knowledge and judgment ability.." (Int. 15) +"The application of auditor's knowledge in different phases such as planning, fieldworks, reporting, will be dissimilar." (Int. 13)	Different influences of sub-categories to audit seniority and audit phases	***Different influences of sub-categories***

Appendix 6: Significant Quotations & Attributable Codes for Each Round (cont.)

Questions	Example of Quotations	Categories	Tentative Sub-categories
Round 4 ***(5 interviews)*** **+ To continue identify the categories and sub-categories that emerged from the data analyses in round 1, 2 and 3;** **+ And, to deepen the relationships among the sub-categories**	+"General business knowledge helps auditors make more reasonable and flexible decisions. With general knowledge, audit decisions will become more appropriate and critical." (Int.22) +"We need the general knowledge in all phases …, general knowledge is very crucial for the communications with clients and in getting client's trust." (Int.24)	General knowledge of economics, markets, and businesses	***Knowledge and types of knowledge***
	+"Technical knowledge is important to since it helps auditor know what they need to in the performing of audit procedures" (Int. 22) +"Technical knowledge is inevitable to an auditor... it is the backbone or cornerstone of any audit jobs." (Int. 24)	Technical knowledge	
	+"To particular or distinctive industries, auditors must have good understandings of the industry …e.g. in-deep understandings on both accounting and auditing on the industry. Specialized industry usually has very different characteristics in comparison with normal accounting system (e.g., oil and gas) (Int. 24).	Specialized knowledge of the being audited industry and clients	
	+"Auditors have to deal with judgments… Auditors may need to judge on the reasonableness of … treatments or methods." (Int. 24) +"The exercise of professional judgment happens from the initial step to the last one... to complete their tasks case by case." (Int. 25)	Professional judgment	***Professional judgment***
	+"Ethics is the core value in auditing… It is impossible..to perform tasks without a strict compliance of ethical requirements." (Int.24) + "Ethics is very crucial for auditors. Ethical requirements are highly emphasized to high level auditors." (Int. 25)	Ethical aspects	***Ethical requirements*** ***Knowledge integration***
	+ "Auditors need to have all types of knowledge,...combination of knowledge helps auditors understand practical situations." (Int. 22) +"There is a combination/support of knowledge aspects." (Int. 24)	Knowledge combination	***Inter-relationships among sub-categories***
	+"Knowledge supports and improves audit judgment..." (Int. 22) +"Judgment helps improve knowledge…" (Int. 22) +"Knowledge is necessary in making professional judgment." (Int. 23) +"… Unethical results may differ among audit levels." (Int. 24)	Inter-relationships of sub-categories	***Different influences of sub-categories***
	+"There are some procedures whereas industry knowledge is more important than technical knowledge, and vice versa." (Int. 22) +"The influences of knowledge or judgment to each levels are different." (Int. 21)	Different influences of sub-categories to audit seniority and audit phases	

Appendix 7: Survey Instrument

Research on Wisdom and Decision Making Process in Auditing

General Questions

*Required

1. Please indicate your highest seniority level that you have been or used to be *

- ◯ Partner
- ◯ Director
- ◯ Manager
- ◯ Senior
- ◯ Audit Assistant

2. Audit experience (years) *

3. Which countries do you work as an auditor? *

4. How many audits have you participated in? *

5. Qualifications Attained *

- ☐ ACCA
- ☐ VACPA
- ☐ CPA Australia
- ☐ CPA Canada
- ☐ Other:

6. Gender *

- ◯ Male
- ◯ Female

Research on Wisdom and Decision Making Process in Auditing

*Required

PART 1: Importance to Audit Personnel

Brief explanation

* General business knowledge relates to understandings of the economic operations and business activities in a variety of business situations
(Những hiểu biết chung về sự vận hành của nền kinh tế và các doanh nghiệp)

* Technical knowledge relates to general understandings of accounting and auditing; and particular audit functions, procedures, techniques and issues.
(Hiểu biết về kế toán, kiểm toán; và kiến thức kỹ năng về công việc, thủ tục, kỹ năng và vấn đề trong kiểm toán)

* Specialized knowledge relates to specific audit clients, certain industries in specialized areas
(Kiến thức chuyên sâu về một số ngành đặc thù.)

Please choose the relative importance 1-10 or NA (Not applicable)

1. Audit Partners and Directors

According to your personal opinion, please evaluate the "relative importance of these factors" to audit Partner and Director in decision making process.

(Dựa trên hiểu biết và kinh nghiệm của bạn, vui lòng đánh giá sự quan trọng tương đối của các nhân tố đối với "Partner and Director" trong quá trình đưa ra quyết định.)

*

	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

2.Audit Managers

The relative importance of these factors to "Audit Managers" in decision making process.

(Sự quan trọng tương đối của các nhân tố đối với "Audit Managers" trong quá trình đưa ra quyết định.)

*

	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

3. Audit Seniors

The relative importance of these factors to "Audit Seniors" in decision making process

(Sự quan trọng tương đối của các nhân tố đối với "Audit Seniors" trong quá trình đưa ra quyết định.)

*

	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

4. Audit Assistants

The relative importance of these factors to "Audit Assistants" in decision making process

(Sự quan trọng tương đối của các nhân tố đối với "Audit Assistants" trong quá trình đưa ra quyết định.)

*

	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

PART 2: Importance to Audit Phases

1. In audit planing

The relative importance of these factors at "planing phase" in audit decision making process.

(Sự quan trọng tương đối của các nhân tố trong quá trình đưa ra quyết định.)

*

	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

2. In audit fieldwork

The relative importance of these factors at "audit fieldwork" in audit decision making process

(Sự quan trọng tương đối của các nhân tố trong quá trình đưa ra quyết định.)

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	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○

3. In audit concluding or reporting

The relative importance of these factors at "audit concluding or reporting" in audit decision making process.

(Sự quan trọng tương đối của các nhân tố trong quá trình đưa ra kết luận kiểm toán.)

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	N/A	1 (Lowest)	2	3	4	5 (Middle)	6	7	8	9	10 (Highest)
General business knowledge (Kiến thức chung về hoạt động kinh tế)	○	○	○	○	○	○	○	○	○	○	○
Technical knowledge (Kiến thức kỹ năng về kế toán, kiểm toán)	○	○	○	○	○	○	○	○	○	○	○
Specialized knowledge (Kiến thức chuyên sâu trong kiểm toán các ngành nghề đặc thù)	○	○	○	○	○	○	○	○	○	○	○
Professional judgment (Phán đoán nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○
Ethical requirements (Quy định về đạo đức nghề nghiệp)	○	○	○	○	○	○	○	○	○	○	○