

***Ability, Cognitive Fallibility, Procedural Instrumentality and
Audit Group Judgment: An Exploration***

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Abstract:

The issue of auditor judgment prowess and resultant decision-making ability has been an important topic in the behavioral auditing area for many years and has generated a voluminous research literature. However, relatively little literature exists on the factors that affect group decision-making₁ in auditing (e.g., Arnold, Sutton, Hayne and Smith, 2000). This issue is important since so much of audit firm decision-making has its origins in audit group deliberations (Hunton, 2001). Accordingly, understanding circumstances that give rise to either more flawed ('process losses'), or better ('process gains'), group decision-making outcomes are important even though the literature generally recognizes the superiority of group over individual decision-making (e.g., Rich, Solomon and Trotman, 1997). The model developed here is intended to develop a better understandings of cognitive factors that impact positively or negatively on group process. We further examine group factors that may mute or exacerbate the effect of these cognitive factors. These are discussed within the context of amongst audit group members, who may have differing preferences, beliefs, competencies, and goals. We then develop a four stage model of group decision-making, during which the differing assets and liabilities (cognitive, expertises) of group members are combined. The four stages are Diversity, Controversy, Insight and Resolution.

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I. INTRODUCTION

The issue of auditor judgment prowess and resultant decision-making ability has been an important topic in the behavioral auditing area for many years. As such, it has generated a voluminous research literature. However, relatively little literature exists on the factors that affect group decision-making¹ in auditing (e.g., Arnold, Sutton, Hayne and Smith, 2000; Kleinman, Palmon and Lee, 2003; Hunton, 2001). The issue of audit group judgment prowess and decision-making ability is important since so much of audit firm decision-making has its origins in audit group deliberations (Arnold et al., 2000; Hunton, 2001). Accordingly, understanding circumstances that give rise to either more flawed ('process losses'), or better ('process gains'), group decision-making outcomes are important to the profession. This remains important even given the generally recognized superiority of group over individual decision-making (e.g., Arnold et al., 2000; Rich, Solomon and Trotman, 1997). To the extent theoretical and empirical research can develop better understandings of cognitive factors that impact positively or negatively on group process, the more likely it is that group processes can be re-jiggered so that groups can perform even better. We further examine group factors that may mute or exacerbate the effect of these cognitive factors.

We discuss the impact of these cognitive factors within the context of a negotiation amongst members of the audit group. We define discussions among audit group members as a negotiation since there is always a possibility of differing preferences, beliefs, competencies, and goals among group members. As Kleinman, Palmon and Lee (2003) argued, the auditor is engaged in a negotiation whenever he or she has to deal with differing views, opinions and ideas. Since these have to be resolved, the result is a negotiation.

¹ The audit group decision-making literature makes a distinction between audit teams and audit groups. Audit teams are not generally considered co-acting individuals, but sequentially acting individuals where one individual reviews the work of another individual, but not while interacting with that individual. Audit groups generally are considered co-acting individuals (e.g., Rich, Solomon and Trotman, 1997). We focus here on audit groups, not teams.

The importance of audit group decision-making acuity arises from the central role that auditors play in the financial markets' capital allocation process. Since the auditor's opinion serves as the public's de facto guarantor of financial statement accuracy, it is very important. Without it, the American capital markets may lose their extraordinary liquidity since investors may no longer trust their firm's reported financial performance information.

As Arnold et al. (2000) noted, prior literature with respect to audit group decision-making has been limited. Given this dearth, it is important to develop a much larger body of theoretical and empirical work aimed at fostering understanding of group processes and performance in the auditing arena. Accordingly, we seek to develop pathways for future research in the group decision-making arena. Specifically, this paper develops an integrative model of cognitive heuristics and related factors that may impact on the accuracy of the audit group decision-making processes. In this effort, we ignore socio-emotional and other factors that were examined in Kleinman et al. (2003) and related work.

Certain key issues confront writers and researchers in the audit group decision-making field. The first is the level of personnel involved in the group decision-making exercises. Since such meetings can be held between a lead senior and audit juniors; or an audit manager and select seniors; or between an audit partner, a review or consulting partner and an audit manager or a technical support specialist, it is important to delineate the different kinds of decisions that can be made. Some decisions (e.g., audit staffing decisions) may be narrowly technical and may be made between audit managers and select seniors or even between a lead senior and audit juniors. Other decisions involving evidence evaluation at a pre-final review stage may be made between an audit manager and his/her lead seniors. Some elements of this evaluation may use highly specific data tied to highly specific auditing criteria or rules. Other decisions however may combine elements of the evidence evaluation routine and the interface between the audit firm's need to accommodate both the client and societal expectations for the profession. Narrow, technical issues have criteria that are relatively clear cut to use in judging the decision-makers' efficacy. It is the broader decisions, such as those made by high-level audit groups that lack clear evaluative criteria, except those affected by hindsight bias,

that are vital in terms of the impact of decisions on the place of a particular audit firm in the professional firmament. Such situations involve (a) consideration of technical criteria underlying the audit opinion decision, as they apply to the specific circumstances of the client; (b) issues of the auditor-client relationship and how it will be impacted by any particular recommendation made to the client; and (c) the impact of any agreement with the client upon the audit firm's position in the professional world. With the exception of Kleinman, Palmon and Lee (2003), we know of no research that has looked at this. The discussion we present is largely geared to the latter situation, but has clear applications to the simpler circumstances as well. A key problem in dealing with group decision-making at this level, is that group learning is likely to be inhibited by the lack of clear and unambiguous feedback about the relationship or prior decisions to outcomes (see Kleinman and Palmon, 2000a; 2001). Even so, since the outcomes of these decisions may have important impacts on the future prosperity of the audit firm and profession, it is important to understand factors that may impair or support their functioning.

This article is purely theoretical. So little work has been done studying audit group processes that it seems to us that there is substantial room for the development of theoretical tools and concepts for understanding the group process in auditing and for empirical development. We hope that future researchers will take the concepts put forth here, few of which have appeared in prior audit group research, and develop them empirically. Even shy of full blown empirical exploration, we believe that presentation of these concepts can lead to better individual awareness of non-rational factors affecting group interactions, and therefore a better understanding of the outcomes of group processes in the auditing world.

Next we present these concepts. Subsequently, we present a literature review, and then describe the intersection of group process and model elements. Finally, we present suggestions and conclusions for improving the group decision-making process, as well as the import of such improvements for auditor-client relationships and the ability of the auditing profession to meet societal expectations.

II. DISCUSSION OF INDIVIDUAL MODEL ELEMENTS

In this section, we describe individual elements that may affect the individual's decision-making, and therefore the group process. In the subsequent section, we suggest

ways that these elements may collectively interact with the group process to magnify, or mitigate, the effect of these elements on the group decision outcomes. The elements of interest are presented in Table 1.

<INSERT TABLE 1 ABOUT HERE>

TABLE 1: Definition of Elements of Interest	
Ability:	The potential to learn, either generally or in specific domains
Experience:	Mental or physical activity within a specific domain
Knowledge:	Retained information about a specific domain
Memory Matching:	Association of new experience or cognition with prior experiences or cognitions
Thinking Dispositions:	A personality-like concept that reflects attitudes toward exerting effort to achieve some end, e.g. proclivity to examine situations thoroughly
Cognitive Heuristics:	Non-normative influences that may affect the accuracy of decision-making, as measured against normatively desirable outcomes
Perceptual Clarity:	The degree of correspondence between the objective reality of a situation and the observer's perceptions of that situation
Cognitive Orientation (Mind Set)	Mind sets, or cognitive orientations, represent a priming of the individual to act in certain modes.
Desired End State:	The goal that one has in mind, e.g., drawing accurate conclusions from the audit of a client
Affect Heuristic:	Emotion or mood attached to a specific object or event that affects the nature of the individual's reaction to that object or event
Performance:	As a verb, conducting activity that is instrumental toward achieving an end; as a noun, the results of such activity

Ability is a key element because it often sets the ceiling on the accomplishments of individuals. Yet it is tricky in that, as Gardner (1999) writes, a number of different abilities are possible and any one individual is likely to possess a high level of but a small subset of these. Kleinman, Medinets and Palmon (2006) argued that the three abilities of greatest use in the auditing domain are logico-mathematical, intrapersonal and interpersonal abilities. Briefly, logico-mathematical abilities seem likely to be those that are important in accounting/auditing practice. Accounting is a very logical discipline whose basis of reasoning arose from economics and the assumptions thereof. In discussions within audit groups, one might expect that those with greater logico-mathematical abilities will be more likely, other things equal, to carry the day in argument. Interpersonal abilities relate to the person's ability to understand the motives and ends of others and organize his/her own behaviors around that understanding. The goal of such organization would be the achievement of one's own ends. In the audit

group context, this suggests that the individual would be highly capable of arranging for the group to locomote in his/her own preferred direction. Intrapersonal abilities relate to the auditor's ability to understand his/her own motivations and abilities. Greater intrapersonal abilities, therefore, *may* relate to a reduced likelihood of becoming defensive during group interactions. This ability, therefore, suggests greater flexibility on the person's part.

Knowledge represents the fruits of ability and experience. *Experience*, though, is a continually developing construct that reflects both current and prior experiences. Further, these experiences can be had in many different functional and official roles, in many diverse industries, at widely diverse firms within the same industry, in different audit firms, and reflect the educational experiences of the individual as well. Experience, therefore, is not uniquely characterizable. It becomes difficult, therefore, for two individuals to be described as 'equally experienced' since it is unlikely that any two individuals would have walked in lockstep through all the stages of professional and, indeed, personal development.² Although not often noted in the literature, presenting situations that constitute experience may be interpreted by different individuals in different ways. Thus the lessons learned may differ. Individuals with greater abilities to understand others (interpersonal ability) may take one lesson from an encounter with either group members or clients, while a person with greater intrapersonal ability may learn more about him/herself from a presenting situation and act on that greater self-knowledge to alter his/her own behavior in some respect. Some of the reasons for these differences are addressed below. Our point, though, is that describing an individual as experienced may be a very loose description indeed since experience may consist of an olla podrida of elements that vary widely amongst members of a generically described 'experienced' group.³

² Relevant experience does seem to have effects on pattern recognition accuracy among industry versus other specialists, however. Hammersley (2006) found that industry specialist auditors provided financial statements seeded with potential misstatements, were able to form more complete problem representations, estimate a higher risk of misstatements, and suggest procedures for more fully evaluating the situation than were individuals with expertises outside the relevant industry, however. See also Lehmann and Norman (2006) on the development of more precise problem representations as auditor experience grows. Nelson and Tan (2005) note that very little research has been done on how or whether having individuals with similar expertises, or different expertises, affect group judgment.

³ Note, though, that the literature on expert judgment generally categorizes individuals as experienced or not based on number of years in, say, the auditing field or as partner. (e.g., Shelton, 1999).

Knowledge, therefore, represents the outcome of the application of ability to the elements of life's passage that gives rise to relevant experience, however relevancy is defined. This description is consistent with Libby and Luft's (1993) model of the development of knowledge in the accounting arena, and Mayer's (2003) more general and recent summary of the literature on the relationship of ability and knowledge to experience in the psychology field. While it would seem that equal abilities (e.g., an equally elevated profile of ability scores on logico-mathematical, interpersonal and intrapersonal dimensions of ability) and equal amounts of time spent in similar positions, and exposure to similar clients, would give rise to equal knowledge, this is still not likely to be the case. And even if it was, the application of knowledge to presenting situations is problematic since the process of that application frequently relies on matching the current issue to prior experiences. That too may be problematic.

Knowledge, and even expertise, can exist within the heads of specific individuals or as a firm-level resource due to its encapsulation in standard operating procedures, organizational memory or manuals, or training programs (e.g., Beck and Wu, 2007). As Beck and Wu note, though, this encapsulation introduces correlated errors into the judgment processes and does not avoid problems stemming from differing interpretations of the presenting situation, the encapsulated rules themselves, nor other individual-difference-derived influences on the understanding of individuals within the firm. Further, reliance on encapsulated knowledge has the difficulty of standing athwart the profession's emphasis on the primacy of professional judgment. The latter may always serve as a shibboleth that makes contravening encapsulated knowledge easier than may typically be thought.

Memory matching is the process of identifying previous situations that are related to the current, presenting one.⁴ This is important in our discussion because, as Norman and Lehman (2006: p. 69) note, "experts focus on recognizing characteristics similar to analogous situations, and use that information to organize their solution to the current problem." This, however, may be difficult in that features of the previous environment that become salient to the decision-maker may differ with the passage of time as

⁴ Our discussion of memory matching does not include intentional 'forgetting' of unpleasant events, nor the volitional manufacture of memories intended to help in 'impression management' exercises (see Goffman, 1959).

individuals engage in retrospective sense-making and selective forgetting. Further, memory-creation is an ongoing, syncretic process in which memories change as new information and experiences are acquired, with no clear distinction being maintained in memory between the original memory and the memory that, some time later, represents itself as the original memory of the event. In such a situation, it is difficult for the decision-maker to clearly learn the lessons of the historical event and apply them to the current event. Given that different individuals will have even originally similar memories of a past event altered due to idiosyncratic experiences, the likelihood that the same event will be recalled similarly is diminished. Further, since individuals tend to live in micro-environments (e.g., Goleman, 1987), their experiences of prior incidents are even less likely to be laid down exactly as are the memories of another.⁵ As we will see later, the fluidity of memory, and its tendency to differ based on the re-caller, makes agreement on commonly experienced events difficult.

An additional individual-level variable is one's *thinking disposition*. Thinking dispositions, as defined by Stanovich, Sà and West (2004), are one's willingness to be open-minded, thorough in examining presenting issues, and accept contrary evidence. Individuals systematically vary with respect to their cognitive activity and openness to new information. Regrettably, as Stanovich et al. (2004) report, this leaves some individuals more subject to cognitive heuristics than are others. In their study, Stanovich et al. found that greater levels of actively-open-minded thinking (i.e., a higher thinking disposition) led, along with a higher intelligence, to a reduced tendency to be influenced by cognitive heuristics. Since individuals may differ on this disposition, they bring different levels of preferred intellectual activity to any group meeting. The receptivity of others to individuals who clearly have thought more thoroughly about an issue than others is an important issue here.⁶ Bierstaker and Wright (2001), for example, found in

⁵ As Lehmann and Norman (2006) also note, the nature of the task as well as the level of experience affect conciseness of problem representation, one measure of expertise. The Lehmann and Norman task involved going concern decisions in which the study participants were provided with common stimulus materials. How often, though, in the real world are different client situations so similar? And what does that mean for drawing inferences from the results of the study?

⁶ See in this respect Kadous, Krische and Sedor (2006). KKS found that individuals who were asked to generate a few counterexplanations to management plans to improve future earnings were less optimistic about the possibility of these plans being achieved than were individuals who had the more difficult task of generating more such counterexplanations. This held true even after the content of the counterexplanations was controlled for.

their study of the relationship of practical problem solving ability to performance on auditing tasks, that higher levels of PPSA were related to better performance on auditing tasks. The importance of PPSA in the Bierstaker and Wright (2001) study, or thinking dispositions here, is that little is known—as BW note—on the relationship between ability and performance on accounting tasks. The difference between PPSA and thinking dispositions is that PPSA reflects an ability, while the latter reflects a predisposition to use whatever abilities are present to solve problems.⁷

Dual process models of thinking posit (e.g., Stanovich, 1999) that there are two models of thinking. One model argues that thinking is automatic, heuristic and computationally undemanding. The other is serial, rules-based, analytic, and computationally demanding. *Cognitive heuristics* are non-normative influences that may affect the accuracy of decision-making, as measured against normatively desirable outcomes. There is a rich literature on these heuristics that reaches back to the pioneering work of Kahneman, Tversky and others. These heuristics, in short, are a departure from the rational model of decision-making championed in much accounting and economics literature. While Marsh, Todd and Grigerenzer (2004) argue that such heuristics may often be a reasonable choice since they are quick and often-accurate tools for arriving at a decision, that may not always be the case. If not, the result is that more valid alternatives may be overlooked.⁸ Selected heuristics are summarized in Table 2.

<Insert Table 2 about here>

Table 2: Cognitive Heuristics Defined

<i>Cognitive Heuristic</i>	<i>Brief Description</i>
Availability	The set of cues that may be available in the immediate environment of the

⁷ Perkins and Tishman (1998) note that one difference between personality traits and thinking dispositions are that the former account or influence a broad range of individual behavior while the latter influence predominantly intellectual tasks. The authors also note that lawyers, who are trained to evaluate contrasting arguments as part of their professional practice, are not more likely to evaluate propositions that are not related to their professional practice in a like manner.

⁸ Wüstemann and Koch (2006) conducted a thorough review of the literature and concluded that all auditors, across levels of expertise, are subject to the gamut of cognitive biases. Plous (1993: cited in Guthrie and Rachlinski, 2006) came to a similar conclusion with respect to experts. Guthrie and Rachlinski (2006) further cite evidence that individuals steeped in rational thinking and analysis (e.g., lawyers and judges) are often subject to cognitive biases as well. Guthrie and Rachlinski found, however, that individuals with experience in the insurance industry tend to resist the influence of cognitive heuristics more effectively.

	individual will affect his judgment. That is, it sets up a ‘cognitive direction’ (Belkaoui, 1989).
Anchoring	Anchoring is defined as an insufficient adjustment from an initial value, with insufficiency being defined as the amount of adjustment required for the situation. Guthrie and Rachlinski (2006) cite evidence stating that anchoring affects 25% of the variance in a negotiation setting. That is, it is important to put forward one’s own position first!
Framing Effects	Framing is defined as the perspective from which a possible transaction can be viewed. That is, a potential sale can be viewed as a potential source of loss or gain. Since Prospect Theory argues that individuals are more likely to take risks to avoid losses than achieve gains, the frame placed on a potential transaction may affect the outcome of that transaction. Lewicki, Saunders and Barry (2006) note that there are many different types of frames (e.g., process, outcome) and that individual frames may stem from differences between the parties, including personality, values, power, social context and background. We only refer to three in the text.
Selective Perception	Expecting to see something will influence or bias what one does see. That is, people seek information that is consistent with their own views/hypotheses and disregard or downplay contrary or conflicting evidence.
Frequency/Illusory Correlation	People judge the strength of a predictive relationship based on observed, not relative, frequency. Relative frequency compares an outcome x to the sum of the number of instances of x or y that might have occurred. Observed frequency just counts the number of incidents x that occurred.
Overlapping with	Illusory correlation is the belief that two variables covary when they do not.
Law of Small Numbers	The Law of Small Numbers suggests that people make assumptions about a population of events based on the few events that they actually witnessed. Thus they are assuming that the witnessed events are an accurate reflection of the population of events of interest.
Data Presentation	Different types of information may be presented together or separately. People may be differentially sensitive or able to comprehend qualitative or quantitative information.
Overlapping with	People are differentially sensitive to uncertainty. Some individuals experience greater amounts of anxiety in the presence of ambiguity than others.
Tolerance for Ambiguity	
Conservatism	Bayes theorem provides a normative scheme for revising one’s initial or prior beliefs, say, about the likelihood of an event given the new information that has just been received. Conservatism is the failure to

	revise one’s opinion about the likelihood of an event to the extent dictated by Bayes’ theorem, given that new information has been received.
Common Information Sampling Bias	Hunton (2001) describes a group process in which earlier statements enjoy the advantage of primacy , thereby both inhibiting further statements from others and directing attention to discussion of the first to the neglect of other statements that could have, but were not made. The result is that the amount of information shared by the group is both limited in quantity, and the resulting group discussion suffers from lower quality due to the lack of diverse input.
“Best Guess” Strategy	Given that the decision environment may contain multiple sources of uncertainty, and that the level of actual uncertainty may tax the ability of individuals to cope, a best guess strategy may be used. That is, the decision environment can be simplified by ignoring some uncertainties and basing one’s judgment on those one believes are the most probable. Generally, there is a tendency to discount uncertainty.
Halo Effect	Social perception is very similar to stereotyping. Under it, the entire object is evaluated based on the perceiver’s perception of just one trait.
Field Dependence /Independence overlapping with Proximity Principle	The field dependence/independence construct, in this context, argues that individuals may not be able to separate a logically distinct element (figure) from the ground in which it is embedded. Nelson and Tan (2005) describe field independence as the ability ‘to go to the key issue.’ In other terms, not to miss the forest for the trees. The proximity principle states “a group of stimuli that are close together will be perceived as a whole pattern of parts belonging together” (Luthans, 1995).
Motivated Reasoning	Motivated reasoning can be said to exist when pre-existing decision-maker preferences or incentives seemingly affect the way that the decision-maker arrives at a decision through its affect on the decision-maker’s cognitive strategies (Kunda, 1990).
Simulation	The simulation heuristic represents the ability of individuals to construct scenarios in which, for example, a criminal defendant may be innocent. According to Heller (2006) jurors in criminal trials do not reason according to ‘mechanical probability calculations’ (p. 241), but according to a simulation heuristic. Heller’s argument draws on Kahneman and Tversky’s (1982: cited in Heller, 2006) work. As Galinsky and Moskowitz (2000) note, the simulation heuristic is less automatic than other heuristics mentioned and often needs a stimulus to be activated.

Perceptual clarity refers to a person’s ability to perceive an object ‘in its essence’ as it were that is with a minimum of distortion and resultant confusion about the object’s or event’s true characteristics. Individuals may differ in their level of perceptual clarity,

leaving some to see things that others cannot perceive—even with assistance. The difficulties that this may cause are obvious: e.g., disagreement over the nature of the situation facing them. Further, lack of perceptual clarity may be a sign of many things, including defensiveness, characteristic predispositions to see the world as either a rosy or threatening place, an inability to take into account features of the environment that are salient to others if not to oneself, and also a lack of vocabulary to describe confronting situations may lead to a failure to perceive those situations. Lack of perceptual clarity may result in difficulties in understanding the messages conveyed by others with greater perceptual clarity.

Cognitive orientation, or mindsets, may also influence individual behavior. As Galinsky and Moskowitz (2000) noted, these mindsets may include the following: These may include (a) deliberative, (b) accuracy, and (c) implementation-oriented mindsets. Others exist as well, including negative mindsets or predispositions to a course of action. The priming of an individual to ‘be’ in a certain mind set influences their subsequent behavior. For example, an implementation-oriented mindset may prime the individual to engage in solution-minded behavior, as opposed to problem-finding behavior. Searching for solutions without fully understanding the problem is contra-normative. Reactions to presenting situations are also reflective of the deleterious impact of cognitive heuristics on decision-making (see Marsh, Todd and Grigerenzer, 2004, for a contrary view, however.) Different individuals within an audit group may possess different mindsets. As Gollwitzer, Heckhausen and Stellar (cited in Galinsky and Moskowitz, 2000) note, mindsets established in older contexts may be activated in unrelated tasks and contexts. According to the researchers, it seems to have this impact through its effect on information recall and narrative creation. Individuals primed to a mind set tended to ascribe similar mindsets to others. As Galinsky and Moskowitz (2000, p. 388) note, mind sets seem to “tune information processing, attention, and thought production.”

Since all experience is ultimately individual, this has clear implications for audit group discussions and performance. The diversity of narratives and supposition created by the diversity of mindsets adds to the richness of group discussion, but may be problematic in some respects.

The *desired end state* may also influence parties to a negotiation. The desired end state is defined as the goal that one has in mind, e.g., drawing accurate conclusions from the audit of a client (see Rich et al., 1997). But often achievement of one set of goals may be instrumental to the achievement of broader goals. In that regard, the goal of drawing accurate conclusions from the audit of a client may further one individual's career, or retard that of another. Situations like this may arise when, say, the partner on a prior audit seemingly missed an important audit issue that should have led to the qualification of the client's financial statements. Its discovery this year may be problematic for the partner on the prior audit in that the edifice of competence and carefulness that he/she may have previously constructed becomes endangered with the uncovering of this information. The former partner-in-charge's (PIC's) reaction may be subconscious and take the form of an actual inability to see the presenting issue. Or it may not be, depending on the level of ego-involvement that the auditor has in his/her presentation of self as a competent accountant.

Desired end state may also refer to future career progress, or to a desire to leave the firm on a high career note and without further incident. The concept of desired end state may also refer to the broader web of relationships that the auditor has with individuals, organizations, and aspirations outside the boundaries of the audit firm (e.g., Kleinman and Palmon, 2001.) The sponginess of the concept limits its usefulness. Given that it is affected, in part, by the individual's time horizon, the emotional valence attached to any one particular desired end state may differ markedly between individuals, even those simultaneously dealing with the same client.

The *Affect Heuristic* (e.g., Finucane, Peters and Slovic, 2003) holds that individuals may become attached to an event, process, or outcome.⁹ Here, we adopt the model of Finucane, Peters and Slovic (2003), hereafter FPS, to help understand the influence of affect on the audit group interactions. FPS argues that individuals vary in what they term affective reactivity and conditioning history. Tasks differ with respect to their evaluability. Affective reactivity is defined as the extent to which individuals will react to a stimulus. In their example, FPS note that highly anxious individuals are more

⁹ Kahneman and Frederic (cited in Guthrie and Rachlinski, 2006) recently argued that the affect heuristic should be considered one of the big three cognitive heuristics affecting human judgment, along with representativeness and availability. In this classification, anchoring is displaced.

likely to react highly to a negative stimulus or presenting situation than are less anxious individuals.¹⁰ Further, conditioning refers to the tendencies of ‘images’ to become associated with positive or negative feelings due to association-borne experiences. These images may be highly positively or negatively valenced, based on the specific individual’s experience with them in the past. FPS argue that imagery may be pictorial, or include smells, sounds, perhaps even ‘ideas and words’ (p. 333) that have become attached to positive and negative feelings. In the FPS view, imagery may involve almost any cognition that carries an emotional charge! Positive or negative valences would have no meaning in a normative framework, but clearly do in the everyday world since people often make decisions based on hunches and feelings. Given that different individuals may have positive affects tied to one outcome, while another individual may have negative affect tied to that same outcome, audit group discussions may become heated.

In this section we have presented and defined various concepts that may impact the intra-audit group negotiation. These concepts will be further explored below within the context of their potential impact on such a negotiation. Before exploring the concepts, we present a review of recent research on group negotiation in auditing and accounting. As is evident, this research is scarce.

Throughout this discussion, we have laid aside the issue of conflict tolerance. We have cited theory and evidence to suggest that diversity of experience, memory, abilities and the like help the group to avoid common pitfalls associated with group decision-making. Hierarchical issues aside, of course, diverse opinions raise the probability of conflict between group members. Avoidance of conflict, however, may prove as destructive to the decision-making ability of the audit group as the presence of conflict in that there will be no check on the power of the dominant group member and the story that he or she chooses to push forward (see Nelson and Tan, 2005). Too much conflict, though, may present a threat to the group’s viability and lead to lower morale, lack of cohesiveness, and a failure to buy into the ultimate negotiating position to be presented to the client (e.g., Kleinman, Palmon and Lee, 2003). This, also, is to be avoided.

¹⁰ This is oddly, if obliquely, consistent with Beck and Wu’s (2007) claim that having a specialist auditor make judgments across a variety of client situations introduces correlated error. A highly anxious auditor is likely to have that high anxiety impact upon his/her judgment with respect to many clients since the anxiety is a component of the auditor’s personality, not necessarily the presenting situation. The latter, of course, can always provoke high anxiety.

III. Literature Review

Relatively little research on group decision-making exists in the auditing/accounting arena (Arnold et al., 2000; Rich et al., 1997; Nelson and Tan, 2005; Wüstemann and Koch, 2006; Hunton, 2001).¹¹ One relatively recent paper by Kleinman, Palmon and Lee (2003) finds that the audit group's discussions help to develop the group-level resources that are brought into the negotiations with the client group (and vice versa). Their study involved such considerations as hierarchical position in the group, Machiavellian and dogmatic (authoritarian) dispositions, pre-group discussion solution preference and locus of control. The outcomes of the group decision-making process included a joint solution to the presenting problem, satisfaction with the solution reached by the group and the individual's post-group meeting preference for the solution. Their study, using MBA and MS students within the accounting and broader management fields, notably did not include such intra-psychic variables as the cognitive heuristics described here. Kleinman, Palmon and Lee (2003) show that audit-side and client-side groups discuss or debate how to resolve issues critical to the audit outcome.¹²

This paper extends their work by examining the impact of cognitive and other biases on intra-group negotiations, as well as the usefulness of intra-group negotiations as a way to help individuals within the group overcome cognitive and other biases, thereby enhancing each participant's understanding of the client, the technical accounting issues, and the impact of any disputes in the auditor-client relationship. While Lewicki et al. (2005) present an extended discussion of various cognitive heuristics and related biases on negotiation; their discussion is far more general than ours. The importance of our effort is that it ties the literature to the bounded world of auditing groups, with that boundedness in itself affecting the interaction of the biases, the group process, and the group outcomes.

Ho (1999) compared the effects of the use of group decision support systems (GDSS) on consensus and confidence among groups making a going concern judgment, as compared to consensus and confidence among groups interacting face-to-face, without using a GDSS. Ho found that the variance in pre-discussion and post-discussion

¹¹ Rich et al. (1997) state that only nine pieces on audit group judgments appeared in key journals in accounting and auditing. Only three of these appeared in the ten years before the publication of their piece.

¹² For a discussion of the stimulus case that they used, see Kleinman and Palmon (2000b).

decisions remained similarly wide, suggesting that neither the GDSS nor group meetings led to greater consensus among participants. Ho's study did show, however, that groups using the GDSS had greater confidence post-discussion in the solution that the group reached. This, like the Kleinman, Palmon and Lee (2003) study, is one of the few interacting group studies performed in the accounting arena since the Rich et al. (1997) review was published. Its importance here is that it demonstrates that interaction within a group may not induce greater agreement as a result of discussion than existed before the convening of the group occurred. While group decisions were achieved in all instances, individuals seemed to hold on to their pre-meeting preferences just as strongly after being introduced to the opinions of others, as before. A similar result was found in the Kleinman, Palmon and Lee study.

Ahlawat (1999) cites previous literature that found that experience tended to exacerbate the effects of cognitive biases on individual auditor judgment. She argued that group processing may mitigate the presence of recency biases and improve the accuracy of group memory (consistent with Bamber et al., 1996: cited in Arnold et al., 2000; and Johnson, 1994: cited in Rich et al., 1997). Specifically, Ahlawat said that (p. 74) "Group discussion may enhance cognitive involvement and causal reasoning leading to a more complex problem analysis..." and can "affect cognitive organization of the task, which becomes shared by all group members (citation omitted)." And since judgment quality "is a function of capacity and effort...Group processing can augment capacity (via greater collective experience) and motivate greater exertion of cognitive effort or involvement." Bamber et al.'s (1996: cited in Arnold et al., 2000) finding that audit groups tended to engage in more complete problem analysis is consistent with this.

Ahlawat raised a further issue, one resident in the Ho (1999) and Kleinman, Palmon and Lee (2003) studies as well: the nature of the issue. Both Ho (1999) and Ahlawat (1999) used the going concern opinion task as their experimental issue. Unlike many technical issues in accounting (e.g., lease capitalization decisions), the going concern issue has no bright line indicators of when decision A applies or decision B. The going concern decision requires making a series of evaluative decisions with respect to management plans for the future, the current state of the company, etc. In contrast to check-the-box type decisions, the going concern decision involves integrating a wide

variety of information, rife with uncertainty and suppositions about the future, into a cogent position with respect to the possible future dire outcomes for the client firm.¹³

Hunton (2001) argued that two ‘inherent biases’ in small group discussion could be overcome through the use of a group intervention technique designed to mitigate both primacy and common information sampling biases. The former exists when individuals in group discussions tend to focus on, and weight, most heavily the earliest information that they were presented with during group discussion. The common information sampling bias is said to exist under certain conditions. For example, Hunton writes that information shared by all members of a group is more likely to be discussed than is information shared by only some members of the group. The latter is more likely to be shared than information held by only one group member. The combination of primacy and the common information sampling bias is that much information potentially available to the group because it resides within at least one group member is either never voiced or given an inappropriately low weight.

In his research, Hunton had control and experimental groups evaluate an accounting information system. The experimental groups received an intervention called Shared Cognition Awareness Training (SCAT). This training can be categorized as directly informing the experimental group participants of the nature of the biases and directing them to remain aware of it while engaging in the next part of the task. Regrettably, Hunton (2001) only had two groups in the laboratory phase of his study, and two groups in the field stage of his study. All the groups had four members. One group in each setting did not receive the SCAT prompt, while the other did. Hunton concluded that the awareness training had the desired effect.

Thorne and Hartwick (2001) examined the ability of group discussion to influence the level of auditor moral reasoning. Using five person groups, with manipulations that put audit subjects into conditions where they were either asked to describe how an auditor should prescriptively resolve a moral dilemma, or how such moral dilemmas would actually be resolved, the results showed that individuals placed in groups with prescriptive instructions were more likely to reason at a higher moral level than those

¹³ This comparison is consistent with research documented in Nelson and Tan’s (2005) literature review. The research, by Nelson et al. (2002, 2003) shows that technical issues between auditors and clients are more likely to be resolved in favor of the auditor, than are more judgmental issues. See also Rich et al. (1997).

placed in groups with instructions to describe how an auditor would actually resolve a moral dilemma.

Of these studies, only the Kleinman, Palmon and Lee (2003) studied attempted to look inside the black box in order to uncover processes that underlie audit group decision-making. Their study focused on the impact of personality, hierarchical position, and pre-discussion choices on the outcomes of the group decision process. Using structural equation modeling, they were able to shed some light on the processes involved.

Next we explore the interaction of cognitive factors, group processes and contextual elements on potential outcomes of the group decision-making process in an auditing setting.

IV. Implications for Negotiation

In order to understand the kind of negotiations that occur between an audit group and a client group, the negotiations within each group must be explored.¹⁴ We posit that the individual participants will each be subject to one or more of the cognitive heuristics and related cognitive factors described above, and do not further describe them here. As Orr and Guthrie (2006) showed, individuals in negotiations are affected by heuristics of anchoring, although its effects are somewhat diminished with more expert negotiators and with the availability of more information (see also Lewicki, Saunders and Barry, 2005). The studies meta-analyzed by Orr and Guthrie involved two-party, adversarial, negotiations. We are concerned with negotiations among audit group members whose task is to come to a common negotiating position to present to the client side. Accordingly, we focus on potential contextual moderators of the impact of the factors described above on these intra-group negotiations. These contextual moderators are described below.

In the following discussion, we add four key elements to the brew from the previous sections. The contextual moderators are *diversity*, *controversy*, *insight*, and *resolution*.

¹⁴ While audit staffing practices may vary from firm to firm, as Beck and Wu (2007) present, we assume away these differences since our key concern will be the level of diversity within the group, and not the well from which that diversity sprang.

- *Diversity* represents the variety of perspectives, abilities, fallibilities, experiences, knowledge, personalities, contributions (however defined) that individuals bring to the group, and the source of the individual for the group. As the discussion below shows, diversity is important in helping to avoid such negative group phenomena as groupthink (Janis, 1982) and an inadequate exploration of presenting issues. Beck and Wu (2007) note that individuals who have worked together before, and/or stem from the same area of the audit firm may introduce correlated errors into the group's decision-making process since the similarity of their background may imply that they have all learned things the same way. Introducing individuals from other offices reduces the homogeneity of the audit group, diminishing the likelihood of correlated errors and reducing the likelihood of groupthink.
- *Controversy*, or conflict, exists in part as a result of diversity in the group, although certain kinds of homogeneity may trigger conflict as well (e.g., having two dominant personalities in the group, contesting for dominance, or members of different firm offices serving on the same group). Controversy may serve to force a more thorough exploration of issues before the group (e.g., Favere-Marchesi, 2006), although fear of conflict may result in individuals shying away from the discussion.
- *Insight* may come from the presence in the group of an individual with superior abilities who then makes these available to the group. The ability of others to appreciate these insights is a partial function of the other individuals' ability to clearly perceive the abilities and relevant experience of the other, and weigh them against appropriate criteria. To the extent that individuals perceive other's views as inconsistent with their own, and self-serving biases interfere (Babcock and Loewenstein, 1997: cited in Guthrie and Rachlinski, 2006), this may be problematic. Insight may, however, undermine such biases since it is also, importantly, a result of the discussions and controversies in the

group as contributions of information and varying perspectives and countervailing heuristics interact to bring others in the group to new understandings, leading them to move away from their prior reliance on heuristics and prior (emotional) experiences in the presenting instance. Given, however, that heuristics are a largely unknown quantity to decision-makers, accepting others' challenges to one's preconceptions may be difficult and therefore insight may be difficult to achieve.

- *Resolution* is the move towards a decision. It results from tying up various controversies that are in play during the group discussion. The outcome of resolution is a negotiating position to take to the client.¹⁵ Resolution may be quick or be dragged out. Obvious determinants of the speed of resolution include levels of controversy (conflict), presence of a dominant hierarchical member, transparency of outcomes from proffered solutions, exhaustion or a change in the aspiration level of the parties, and the presence of a transcending goal. Insight speeds resolution because individuals within the group understand better the implications of their own position, and that of others, and the conjunction of the two with respect to the broader context of the auditor-client relationship.

Here, we expand on the previous theoretical and empirical work by exploring the impact of the various cognitive heuristics and other issues that affect group negotiation. We do not explore each of these in turn, but regard each as an input to the group decision-making process. The impact of each heuristic on any specific individual may vary. The heuristic may affect some individuals more than others, or in different ways. The impact of these heuristics, in consonance with group processes, may help explain why groups tend to perform better than the average member, but less well than their best

¹⁵ Some may question the use of the words 'negotiating position' as the outcome of the audit group's deliberations over how to address issues that have come up with the client. Any stance taken is, in essence, a proffer that is subject to a response from the client. Whether the audit group changes its stance in view of that response, or stands pat, is in itself a decision that emerges over time. For example, even an audit group belief that they will stand firm no matter what the client response may change if the client response is but insignificantly different from the audit group's. After all, why quibble over an immaterial difference. Therefore, the client alternative may be adopted.

member (see Rich et al., 1997). Box 1 presents an exploration of the overall dynamic, using frames as an example.

BOX 1: FRAMES AND THE DYNAMIC OF RESOLUTION

Frames take many forms. These forms include substantive, outcome, process, identity, characterization, aspiration, and loss-gain frames (Lewicki et al., 2005). Individuals on an audit group, for example, may have different outcome preferences with regard to proposals to be made to the client. One member of the audit group may wish to avoid antagonizing the client for fear of losing it, perhaps damaging the member's future prospects. Another may look back at the history of the audit firm with that client and believe that the client should be fully held to account even at the cost of losing it in order to avoid some larger distress (e.g., at the hands of the SEC), or signal other clients that they too will be held to account. A third may wish to avoid substantive conflict with the client in order to keep buried a prior compromise with the same since, given the post-Enron regulatory environment, that prior compromise would look unseemly and damage the individual's self and public image as a professional (e.g., Stefaniak, 2006). Differing views of the substantive merits of the disagreement may also affect attitudes toward the client, as well as one's correspondents in the intra-group negotiation. The impact of the different frames on each one's stance within the negotiation may help each to flesh out considerations available to other group members, if they are revealed. But as the Stefaniak (2006) paper suggests, buttressed by common sense, individuals may be loath to share information that affects their self-image, and image in the eyes of others.

A commonality of frames (e.g., a damage to the firm frame if the client is not held to account) would lead to a quicker agreement on a common negotiating position. The drawback to a commonality of frames is that a phenomenon that Bazerman and Chugh (2004) labeled 'focusing failures' may affect the negotiation. A focusing failure, in Bazerman and Chugh's terms, refers to attention being paid to a certain set of information, and the ignoring of other, distinctly relevant information available in the environment. If all group members shared the same frame, this would bolster each member's confidence in that frame, leading to both greater confidence in the ultimate decision to confront the client and a quicker decision. Differing frames, however, may

lead to a more extended discussion of the client's (and the audit group's) situation and result in more creative solutions (see Mannix and Neale, 2005) and help free the discussions within the group of a too narrow focus. Exposure to the different frames, of course, can be educative in that the members' perspectives and information base could be improved. The knowledge that multiple perspectives are available for addressing the issue can lead to insight about the issues facing both the client of moment, and the broader issues facing the audit firm in dealing with its client base. The result is a resolution of the issue within the audit group.

This discussion presumes that individuals will understand the frames of others that are being presented to them. As Tanner's (1986) discussion of *conversational* frames demonstrates, however, even individuals who know each other intimately may completely misunderstand the context, and direction, of another's comments.

Within the group, diverse abilities allow each group member to help restructure others' cognitive processes.¹⁶ In effect, each individual educates the others based on his or her strengths with respect to the negotiation. Individuals with higher levels of technical ability, experience and knowledge can share that information with other members of the group, enhancing their understanding of those issues. Similarly, individuals who have better interpersonal skills can share the way that they analyze the auditor-client relationship under various negotiating scenarios with other group members. This enhances their position on the learning curve (see Mannix and Neale, 2005).¹⁷ Of course, the usefulness of these insights is constrained by individuals' ability to incorporate the information. Furthermore, intrapersonal abilities act as one overall constraint on each individual's cognitive restructuring process. Group members with low self-insight may not recognize their relative and absolute lack of logico-mathematical or interpersonal abilities, and so may reject the information and insights provided by others.

¹⁶ Mannix and Neale (2005) present a review of research on how differences in group members' social category, expertise, personality and values may affect group processes and cognitive outcomes. This section draws on their insights, as well as the contributions of Hoffman and his colleagues to this stream of research (e.g., Hoffman, 1959; Hoffman, Harburg and Maier, 1962; Hoffman and Maier, 1961).

¹⁷ An example of the effect of discussion on individual learning and cognitive restructuring in an auditing context can be seen in Thorne and Hartwick (2001).

Given that individuals are often overconfident (e.g., a self-serving bias) in their own abilities and misperceive the way that others perceive them, they may claim to have strengths in areas where they are relatively weak. In groups with histories, this may be a minor matter since other individuals in the group will have had the opportunity to observe the individual in other situations and, barring attribution errors, evaluate the 'true' strengths of the group's participants (e.g., Favere-Marchesi, 2006). In ad hoc groups, however, such measuring of claims against histories may be problematic. One relevant occasion for an ad hoc group may be in situations where decision-makers from different offices of the same audit firm share responsibility for an audit. To the extent, therefore, that reference webs within the firm do not provide veridical information, individuals on the audit group may be misled. Reference web information is also problematic, however, since it shares both the virtues and the drawbacks of the game 'Telephone': The virtue is that some kernel of the information transmitted/received may be true. The drawback is that the recipients may not know how much, and which, of the information transmitted/received is true.

Diversity of group members' characteristics may be important as well. Research by Hoffman and colleagues suggest that diversity of characteristics will lead to better, more creative group decisions (e.g., Hoffman, 1959; Hoffman, Harburg and Maier, 1962; Hoffman and Maier, 1961), and this diversity should have greater impact for complex problems. The characteristics needed for creative group problem solving include abilities, expertise, perspectives and personality. The environment in the audit group is consistent with Hoffman's description. By contrast, Janis (1982) describes homogeneous groups as subject to groupthink and early termination of discussion when coming to a conclusion. Cheng, Luckett and Schultz (2003), for example, found that cognitively diverse dyads performed better on a complex decision-making task than did homogenous dyads. The task was a production task, and the individuals' scores on the Meyer-Briggs typology measured cognitive diversity. This effect was found when comparing sensor/intuitive dyads with sensor only dyads, not when comparing sensor/intuitive dyads with intuitive only dyads.

In addition, individuals who are cooperative and open to seeking integrative solutions (see Kleinman and Palmon, 2000a; Kleinman et al., 2003; Kleinman and

Palmon, 2001; and Lewicki et al., 2005) may be more willing to abandon their own positions in favor of others' viewpoints. Individuals possessing greater perceptual clarity may also be better able to perceive the relative differences in abilities, expertise, knowledge, and past performance than others can. As Mannix and Neale (2005) point out, in situations where there is a clear majority opinion and consistent minority opposition, the majority's drive for convergence may cause them to be more attentive to the points presented by the minority, leading to a search for an acceptable solution. Although conflict may occur, the conflict itself may be constructive if it forces advocates on each side to examine their opponents' positions carefully, and so leads to a better understanding of the problem. Thus, audit firms might be able to improve decision quality if they involve other staff auditors, as well as the PIC, in formulating the negotiation strategies to be used with the client (see Gibbins et al., 2000).

Each person brings a different set of experiences to group decision-making. Depending on the audit group members' prior joint and separate histories of dealing with clients, individuals will possess their own memories of how prior auditor-client interactions worked out, and their own perceptions and beliefs about the causes of those outcomes. Even if individuals were part of the same prior auditor-client interaction, their perceptions of past events may differ, and so their respective memory-matches may differ as well. As Loftus and Hoffman (1989) and Loftus (2003) point out, memories may change over time, and people may remember "facts" that never happened, so there may be little congruence of judgment with respect to lessons learned in the past. This is especially true when some participants in prior interactions with the client do not believe that these interactions have current relevance (Gibbins et al., 2000). Different parts of that shared prior event may be differentially vivid for different participants, depending on the nature of their own involvement in the interaction. This may also affect the nature of individuals' differential recall, and be related to the Affect Heuristic and how the latter impacts individual judgment in the current situation. Group discussions may lead to convergence on a joint recollection of that prior history,¹⁸ but it is unclear whether the agreed upon "truth" will reflect what some impartial, perfect recollection of what that

¹⁸ Ahlwat (1999), for example, notes that group interaction with an audit group setting improves both accuracy of recall and group confidence in that recall. Group interaction also seems to diminish recency and order effects, as compared to individual judgments.

history would show (see Ahlawat, 1999). Further, while Ahlawat's research suggests that group memory is superior, as with all laboratory studies, it lacks the urgency that may affect individual participant behaviors and pressures in real life. Accordingly, group discussions may lead the members to draw the wrong conclusions from prior histories of auditor-client interactions. Evidence from the audit firm's permanent files may mitigate this, to the extent that the narratives of relationships and discussions with clients are faithfully maintained. With respect to non-numerical information, though, bureaucratic gamesmanship, game playing, self-protection on the part of the person maintaining the records, or simply self-delusion may distort maintenance of these records.

In addition to the malleable nature of memory, individuals tend to attribute failure to external factors and success to themselves (see Kleinman, Palmon and Lee, 2003; Kleinman and Palmon, 2001). If two individuals had played different roles in the same prior incident, one person may attribute the failure to external factors, whereas the other may attribute the failure to the first person. Thus, disagreements may arise as to the cause of past problems, and so the lessons learned from these prior incidents may differ. In this situation, serious conflicts may arise among the members of the audit group. Individuals may become defensive about their roles in a failed prior auditor-client interaction,¹⁹ and may be unable or unwilling to acknowledge the relevance of that incident to the current situation. This defensiveness may arise, in part, from their affective response to some aspect of the current situation.²⁰

While experience affects recall, so may cognitive orientation or mindsets. Since, as Galinsky and Moskowitz (2000) note, previous experiences may cue mindsets in unrelated situations, and mindsets may differ, recall of relevant information from previous experiences may be influenced by one's current mindset. Thus those who are solution-minded may recall facets or facts of previous, even if unrelated, situations that lead the individuals to focus on solution-seeking here. However, individuals may also be deliberative or achievement, etc., minded, leading them also to pursue discussion of the

¹⁹ See Favere-Marchesi (2006) on the role of defensive bolstering in hindering the review process in audit firms.

²⁰ This is consistent with the so-called somatic marker hypothesis of Damasio (1994: cited in Hinson, Whitney, Holben and Wirick, 2006). As summarized by Hinson et al., the SMH avers that present decision-making is guided by the affective reactions of the decision-maker to prior situations that come to mind.

presenting problem with the client within those frameworks. Mindset presumably creates a frame that influences subsequent behavior. In an audit group setting, having an audit group with members who are all of a solution-minded mindset may inhibit a full exploration of the presenting problem with the client, therefore leading to a diminished or inaccurate understanding of the same, with a consequent diminishment of the quality of any potential solution proposed (see Rogelberg et al., 1992: cited in Rich et al., 1997). Just as with diversity of personality, etc., having a group made up of individuals with different mindsets may result in an increased posing of so-called counterfactuals to the more solution-minded members, and therefore may result in more intensive efforts to understand the nature of the presenting problem(s) through greater generation of alternative problem definitions and, thereafter, a more thorough exploration of the problem space, resulting in a superior solution—perhaps after the generation and exploration of a wider variety of potential solutions. Alternate group histories, or times of entrance into an ongoing group discussion may have the same effect, forcing reconsideration of decisions or presumptions about the nature of the presenting problem that may have been arrived at prior to the entrance of the new member (see Rich et al., 1997).

While diversity of personality and perspective may lead to greater solution quality, it is unclear that diversity of mindset will do the same here. For example, having all individuals with a deliberative mindset may lead to greater problem exploration than having some individuals with a solution mindset and others with a deliberative mindset since, in the latter case, there will be a tension between those who wish to thoroughly explore the presenting problem and those who mostly want to choose a solution and then seek authority to implement it. That, though, is uncertain. Uncertainty stems from realistic time constraints set by the approaching end of the audit group's fieldwork and the SEC's filing requirements. Given the real world boundedness of deliberations, perhaps a mixture of solution mindedness and deliberativeness is important in forcing the group to come to a decision.

Real world boundedness is akin to the issue of accountability, an issue long explored in the accounting literature (e.g., Kleinman and Palmon, 2001; Messier, Quilliam, Hirst and Craig, 1992; Favere-Marchesi, 2006). Research literature has shown

that individuals tend to take more care in making decisions when they know that their decisions will be reported elsewhere, and that they also tend to become defensive when challenged after a decision has been made (Galinsky and Moskowitz, 2000). The process of group decision-making, of course, is inevitably an accountability situation since each individual is immediately aware that each utterance is subject to evaluation and criticism by his/her group members (e.g., Wüstemann and Koch, 2006). The willingness of individuals to reveal their own thoughts, however, may be influenced by the presence of hierarchical superiors within the group as well as by personality factors (e.g., Kleinman, Palmon and Lee, 2003; Favere-Marchesi, 2006).²¹ Interestingly, as Favere-Marchesi note, the reviewer him/herself may be hampered in coming to an independent judgment in situations where he/she is reviewing the auditor's work in the presence of the auditor. Favere-Marchesi states that this may be a function of the increased cognitive load that the reviewer faces in that he/she has both to review the auditor's work product and converse with the auditor at the same time. The possibility is also raised that the reviewer may anchor (a term not used by Favere-Marchesi) his/her own conclusions on those reached by the auditor, diminishing the ability of the reviewer to see through the fog of information that he/she is receiving (see Orr and Guthrie, 2006).

Metafactors, such as any individual's felt responsibility or enmeshment in other roles (e.g., parent, professional association), may affect the willingness of even those of a deliberative mindset to resist the importunities of those who are solution-minded (see Kleinman and Palmon, 2001). Rabin (1998), for example, reviewed the literature on decision-making and intertemporal consistency. He found that individuals tend to behave so as to value immediate rewards too highly, even at the expense of longer term, greater gains. While the presence of other group members may promote efforts at more thoroughly thinking through presenting issues, it may also lead to a diffusion of responsibility in which each individual assumes that others are also responsible for any difficulties that may arise with a given decision, and therefore one's own personal

²¹ Curtis (2006) notes that praise or criticism by one's hierarchical superior may create mood states that, in turn, affect one's willingness to report unethical behaviors. Curtis (p. 191), citing Forgas (1995) further notes that a variety of unrelated mood influencers may 'influence decisions of all kinds through their impact on an individual's transient affective state.' This is consistent with our discussion of the affective heuristic. The effect of recent accounting area scandals will also have a considerable impact on individual behavior (see Curtis and Whitecotton, 2005: cited in Curtis, 2006).

responsibility is de minimis. Further, the presence of others signing on to a decision may signal to any particular group member that the solution is probably within the range of professionally acceptable solutions. This might reflect pluralistic ignorance.

Individuals with different thinking dispositions may devote different levels of effort to analyzing the situation confronting the audit group. This might benefit the group if the group member with the greatest perceptual clarity and the most open mind is also the one with the greatest cognitive need to understand the situation. If that individual is assertive, then his or her efforts would drive the discussion forward to a better negotiating stance. To the extent, however, that the individual with the greatest thinking disposition fears that he/she may run counter to the norms of the group, or counter to the preferences of his/her superior, and lets this cow him, the benefits of this person's insight may not be available to the group's members.

However, a group member who seeks a badly conceived end state may use superior abilities, experience, and knowledge to engage in motivated reasoning that will be destructive to the group (see Hoffman and Kleinman, 1994, for a review of the influence of individuals on group decision-making, and the ways that such influence can be exerted). Thus, the group will benefit only if the most able individual's goals are congruent with the goals of the group, and the group's goals are congruent with goals of the firm and the profession. As Mannix and Neale (2005) point out, having superordinate goals helps to diminish the negative effects of conflict in group decision-making. The likelihood of a dominant, shared, superordinate goal however is a partial function of the various metafactors that Kleinman and Palmon (2001) claimed have an impact on the decision-making of the each member of the audit group. While such environmental factors as fear of SEC enforcement powers, litigation and delicensing may become more salient to the auditor due to recent accounting scandals (e.g., Curtis and Whitecotton, 2005: cited by Curtis, 2006), the tendency to discount future events heavily make this less certain.

The simulation heuristic (Heller, 2006; Galinsky and Moskowitz, 2000; and in like vein, Favere-Marchesi, 2006) raises the possibility that individuals will come up with a variety of alternate scenarios. To some extent, having this variety should offset solution-mindedness among the group members since it raises the question of which

scenario is the correct one. On the other hand, a determined member may use his/her ability to create scenarios for dealing with a client to distract the other members of the group from truly more promising alternatives. Heller (2006) notes, for example, that juries frequently discount circumstantial evidence in favor of direct evidence even though the former is more reliable. While direct evidence (e.g., eyewitnesses) can be falsified by the lying of the witness, circumstances rarely lie. Given that social relationships, and the auditor-client relationship is one, are rarely clear cut and don't lend themselves to rigorous analysis, it would not be difficult for a member of the audit group to use his/her superior imagination and/or thinking disposition to divert member attention to areas closer to his/her own liking.

Marrying greater levels of logico-mathematical ability, interpersonal ability, and intrapersonal ability to a higher thinking disposition and willingness to indulge in the simulation heuristic may be of great use to the group. As Kleinman and Palmon (2001) argue, however, the individual auditor's behavior needs to be constrained by a combination of internal commitment to the profession, a career aspiration that the individual sees furthered by adopting goals that are consistent with the profession's, and organizational culture and structure elements that are conducive to the individual's doing the right thing. Else, the group may be led into a direction that contravenes the profession's normative standards. The presence of others in the group who are willing to speak up raises the likelihood that competent counterfactuals will be introduced in the group discussion, reducing the ability of any member to drive the discussion. Thus, the interplay between the characteristics of the members and their willingness to contribute to the discussion is important.

The interplay between the participants in a group conversation may affect the relative contributions of the group members in arriving at a set of strategies, processes and solutions to pose to the client group as part of the negotiating process. The members' interplay may also affect each individual's reliance on cognitive heuristics to reach conclusions, but it is difficult to predict how the interplay will affect the group discussion and conclusions. Heuristics and affect influence group members' reactions to hearing another group member say that their thinking and conclusions about a particular problem with a client are flawed. Each individual who comes into a group decision-making

situation may have relied on different cognitive heuristics to arrive at a conclusion about the best course of action. Ideally, the interplay among group members will result in a resolution akin to that of a normative decision-making process. Mannix and Neale (2005) note that discussions in heterogeneous groups may result in positive cognitive restructuring due to the exchange of information among group members. However, individual defensiveness, dogmatism, and the lack of shared superordinate goals may hinder this outcome. Furthermore, in order for such cognitive restructuring of heuristic thinking to take place, the individual group members must be able to identify the departures from normative decision-making processes, and then clarify the issues for the group. Unfortunately, as Kleinman et al. (2003) show, holders of hierarchical positions in audit groups have the power to influence the conclusions reached in a group discussion. In that case, other group members may be reluctant to contradict a hierarchical head of the audit group whose reasoning has been affected by cognitive heuristics. In the extreme, then, the decisions of the group reduce to the obvious preferences, and therefore decisions, of the group's dominant member.

V. Discussion and Conclusions

The importance of improving the quality of decision-making by audit groups is clearly evident in the audit firms' reliance on group decisioning in arriving at positions to take with clients. Through the medium of group meetings, the firms can bring together intellectual, technical, and informational resources that are important in arriving at a technically, operationally or strategically correct decision for use vis à vis the client's management. The dearth of research on group decision making in the audit field, therefore, is highly distressing. While group research is a mature field in the other areas of business-related academy, its failure to catch on in the group area leaves the audit firms vulnerable to process losses that may be exacerbated within the specific auditing context. The human processes that more general business-related group research describes may be either exacerbated or muted within the context of the training received by auditing professionals.

This paper describes relevant, auditing-related group research and describes many cognitive heuristics and related issues that may impact on the adequacy of group judgment. Most of the issues described here have not been presented elsewhere. Understanding the impact that these issues may have is important so that future researchers in the field can move to documenting the effect, if any, that these cognitive issues will have within the bounded field inhabited by auditing professionals. In doing so, this paper in effect provides a roadmap for future researchers to follow. Given its comprehensive nature, it suitably augments the comprehensive social psychology and sociology of the auditing field previously produced by Kleinman and Palmon (2001).

The variety and nature of these cognitive issues suggests the need to create a systematic research agenda, in which the issues can be explored both singly and in combination. Since it is notoriously difficult to enlist auditing professionals for research studies, we suggest that carefully selected dyads be used for this research. Individuals within dyads can be matched on various demographic and cognitive characteristics criteria including ability (any or all of the three listed above), susceptibility to cognitive issues and thinking dispositions. All group laboratory research potentially suffers from a lack of motivation on the part of participants. Encapsulating the research program within

audit firm training programs might help ease this problem since the individuals are paid to show up for work anyway, and will accept the legitimacy of the researchers' requests with the same alacrity as they would accept that of any request from their superiors.

Much group research in the psychology field takes place using student subjects. Within psychology, it is often lamented that much is known about the psychology of college sophomores, but not much about the psychology of individuals who have reached their more mature years. We know of no research that holds that there is a negative correlation between susceptibility to the cognitive issues described here, and age. Given that, there is no necessary reason why accounting majors in a professional accounting MBA program can not be used to shed some light on issues of interest. The difficulty arises with the level of analysis. That is, well-trained MBA accounting students may be able to provide good feedstock for future research on technical accounting issues. Their ability, however, to do the same with the more strategic issues that may come under discussion are much more problematic since it takes many years of practice for the students to develop a complex, integrative mental model of the audit environment that audit partners have. As with so much behavioral, psychological and group research however, these higher levels of analysis do not lend themselves to easy study.

The cognitive issues described here remain of use to practitioners since awareness of the cognitive problems may mildly ameliorate the phenomena described. We suggest that the audit firms themselves offer seminars and workshops that explicitly test the participants on their susceptibility to these biases and feed the results back to them, with explanations. If, prior to the feedback, the individuals were asked to rate their decision-making prowess and were then provided with explanations of the result, it should be eye-opening indeed. As much research has shown, individuals are characteristically overconfident about their abilities and overoptimistic about the outcomes that they will experience. Providing explanations of how the cognitive issues will affect real world decisions should be eye opening.

Dealing with cognitive heuristics is possible on three levels. The first is the individual level. That is, following Nickerson (2004, p. 422-424), individuals can use a series of steps to help avoid falling victim to cognitive heuristics. Nickerson's (2004) suggestions include: Seeking to understand the problem; analyzing the problem's ends

and means; clear and unambiguous statement of the problem; making all assumptions explicit; create a pictorial or other problem representation; create a specific representation or figure showing the problem; decomposing the problem into smaller problems; simplify the problem to the extent feasible; reason by analogy from similar problems; and working backwards from the goal state to the presenting situation, looking for points at which parts of the problem can be solve.

On the second level, other possibilities arise—perhaps after individual training. Training group facilitators to recognize and defeat such heuristics may be useful in helping groups learn how to recognize the occurrence of these behaviors amongst their own members. Encouraging respectful but determined exploration of individual statements and issue descriptions, as well as participant categorizations of the presenting situation, analyses, and potential solutions may force individuals away from their tendency to rely on the cognitive problems that we have discussed here. Recognition, with encouragement to comment, should sensitize the group members to this behavior and hopefully will result in a diminution of its occurrence. This approach is discussed in Hunton (2001). Hunton argues that raising individual awareness of their biases may lead them to concentrate more on what he described as more problem-relevant information, and draw them away from peripheral cues. Hunton specifically argues that Shared Cognition Awareness Training would (p. 178) “increase the flow of problem-solving information over a fixed period of time, independent of commonality, thereby leading to a more inclusive discussion.” Hunton cites others who note that strategies used with individuals to de-bias their cognitive processes may also be used in a group context. We agree.

The Thorne and Hartwick (2001) study also suggests an intervention/training modality: Present would be group members with prescriptive requirements to meet as they go through the decision process. Interestingly, accountants are used to analyses of requirements and developing an understanding of how presenting situations match those requirements. Training accounting/auditing groups to follow prescriptive problem-solving routines written in a way intended to minimize the impact of cognitive heuristics on the group discussion asks the auditors/accountants to follow prescriptive routines that they are used to in other parts of professional practice. Auditors, whose modal

personality type has been said to be Conventional (Holland, 1985: cited in Kleinman and Palmon, 2001) and therefore rule-abiding and methodical, may find the structuring of the group decision process consistent with their personality type. Only research could illuminate how this would work in practice. We believe that research extension of both Hunton's (2001) work, and that of Thorne and Hartwick (2001), would be worthwhile.

The third level relates to institutional staffing decisions with regard to the composition of audit groups that develop the negotiation positions vis à vis the client. Following Cheng et al. (2003), it is conceivable that selection of individuals for these groups can be handled by the audit firms in such a way that a diversity of perspectives, abilities and experiences is present. This may engender the requisite controversy needed to cause insight into the problems of the decision-making process to arise, resulting in a more normatively good resolution of the challenges facing the audit team. However, this will be difficult to the extent that group memberships are dictated by other considerations, for example representing different offices engaged in the audit.

Finally, reinforcement of the reasons why the best attainable decision-making in auditing is important may give group members additional reasons to engage in self-checking. Encouraging group member adherence to a strictly limited definition of the group's goals and aspirations may be important in avoiding game-playing behavior by the participants. Designing an organizational reward system to encourage congruence between the individual's goals and the group or firm's goals is important as well. Accounting and auditing practices are rational disciplines, whose members are trained to think in terms of the classical homo economicus. These calculations, of course, have to be tempered by the ethical and professional constraints of service to the public interest. We hope that individual and group-based training, as well as the process of diversity, controversy, insight and resolution combined will act to adequately temper the effects of cognitive biases on the group decision process.

References

- Ahlawat, S. (1999). Order effects and memory for evidence in individual versus group decision making in auditing. *Journal of Behavioral Decision Making*, 12(1): 71-88.
- Arnold, V., S. G. Sutton, S. C. Hayne and C. A. P. Smith (2000). Group decision-making: The impact of opportunity-cost time pressure and group support systems. *Behavioral Research in Accounting*, 12: 69-96.
- Bazerman, M. H. and Chugh, D. (October 2004). Bounded Awareness: Focusing Failures in Negotiation. *Frontiers Of Social Psychology: Negotiations*, L. Thompson, ed., Psychological Press, 2005 Available at SSRN: <http://ssrn.com/abstract=627482>
- Beattie, V., S. Fearnley and R. Brandt. (2001). *Behind Closed Doors: What Company Audit is all About*. New York: Palgrave.
- Beck, P. J. and M. Wu (2007). The impact of judgment enhancement strategies on audit quality and firm risk when clients have correlated business risks. American Accounting Association Auditing Midyear Conference, January, 2007.
- Belkaoui, A. 1989. *Human Information Processing in Accounting*. NY: Quorum Books.
- Bierstaker, J. L. and S. Wright (2001). A research note concerning practical problem-solving ability as a predictor of performance in auditing tasks. *Behavioral Research in Accounting*, 13: 49-62.
- Cheng, M. M., P. F. Lockett, and A. K-D. Schulz (2003). The effects of cognitive style diversity on decision-making dyads: An empirical analysis in the context of a complex task. *Behavioral Research in Accounting*: 15: 39-62.
- Christensen, R. E., M. D. Fetters, and L. A. Green (2005). Opening the black box: Cognitive strategies in family practice. *Annals of Family Medicine*, Vol. 3(2): 144-150.
- Curtis, M. B. (2006). Are audit-related ethical decisions dependent upon mood? *Journal of Business Ethics*, 68(2): 191-209.
- Favere-Marchesi, M. (2006). Audit review: The impact of discussion timing and familiarity. *Behavioral Research in Accounting* 28:53-64.
- Finucane, M. L., E. Peters and P. Stovic (2003). Judgment and decision making: The dance of affect and reason. In S. L. Schneider and J. Shanteau (eds.), *Emerging Perspectives on Judgment and Decision Research*. (New York: Cambridge University Press): pp. 327-364.

Galinsky, A. D., & Moskowitz, G. B., (2000). Counterfactuals as behavioral primes: Priming the simulation heuristic and the consideration of alternatives. *Journal of Experimental Social Psychology*, 36, 357-383.

Gardner, H. (1999). *Intelligence Reframed: Multiple Intelligences for the 21st Century*. (NY: Basic Books).

Gibbins, M., S. Mcracken, and S. Salterio (2004). Negotiations over accounting issues: the congruency of audit partner and chief financial officer recalls. Paper presented at the 25th AJPT Conference, November 23, 2004.

Gladwell, M. (2005). *Blink*. New York: Little, Brown and Company.

Goffman, E. (1959). *The Presentation of Self in Everyday Life*. New York: Doubleday.

Goleman, D. (1987). Each sibling experiences different family. *New York Times*, July 28, 1987.

Guthrie, C. and J. J. Rachlinski (2006). Insurers, Illusions of Judgment and Litigation. *Vanderbilt Law Review*: 59(6): 2015-2049.

Hammersley, J. (2006). Pattern identification and industry-specialist auditors. *The Accounting Review*, (March): 309-336

Heider, F. (1958). *The Psychology of Interpersonal Relations*. NY: John Wiley & Sons, Inc.

Heller, K. J. (2006). The Cognitive Psychology of Circumstantial Evidence. *Michigan Law Review*, 105(2): 241-305.

Hinson, J. M., P. Whitney, H. Holben and A. K. Wirick (2006). Affective biasing of choices in gambling task decision making. *Cognitive, Affective and Behavioral Neuroscience*, 6(3): 190-200.

Hirsch Jr., E. D. (2006). The Case for Bringing Content into the Language Arts Block and for a Knowledge-Rich Curriculum Core for all Children. *American Educator*. Visited at http://www.aft.org/pubs-reports/american_educator/issues/spring06/hirsch.htm on 4/4/2006.

Ho, J. L. Y. (1999). Technology and group decision process in going-concern judgements. *Group Decision and Negotiation*, 8(1): 33-49.

Hoffman, L. R. (1959). Homogeneity and member personality and its effect on group problem solving. *Journal of Abnormal and Social Psychology*, 68: 27-32.

Hoffman, L. R., K. Harburg, K. and N. Maier (1962). Differences and disagreement as factors in creative group problem solving. *Journal of Abnormal and Social Psychology*, 64: 206-214.

Hoffman, L. R. and G. Kleinman (1994). The individual and group in group decision-making: The Valence Model Redressed. *Human Communications Research*, 21(1): 36-59.

Hoffman, L. R. and N. Maier. (1961). Quality and acceptance of problem solutions by members of homogeneous and heterogeneous groups. *Journal of Abnormal and Social Psychology*. 62: 401-407.

Hunton, J. (2001). Mitigating the common information sampling bias inherent in small-group discussion. *Behavioral Research in Accounting*, 13: 171-194.

Idson, L. C., D.Chugh, Y.Bereby-Meyer, S. Moran, B.Grosskopf, and M. H. Bazerman (2004) Overcoming focusing failures in competitive environments. *Journal of Behavioral Decision Making* 17(3): 159-172.

Janis, I. (1982). *Groupthink: Psychological studies of policy decisions and fiascoes*. Boston, MA: Houghton-Mifflin.

Kadous, K., S. D. Krische, and L. M. Sedor (2006). Using counter-explanation to limit analysts' forecast optimism. *Accounting Review*, 81(2): 377-397.

Kahneman, D. and A. Tversky (1979). Prospect theory: An analysis of decisions under risk. *Econometrica*. Vol. 47: 263-291.

Klayman, J. and Y. W. Ha (1987). Confirmation, disconfirmation, and information in hypothesis testing. *Psychological Review*, Vol. 94(2): 211-228.

Kleinman, G., A. Medinets, and D. Palmon (2006). A Theoretical Model of Cognitive and Related Factors that Affect Reasoning and Performance in Auditor Independence-Related Situations. Research Forum presentation at the 2006 Accounting Behavior and Organizations Section of the American Accounting Association Annual Conference, meeting in Portland, OR, in October, 2006.

Kleinman, G. and D. Palmon (2001). *Auditor-client relationships: A mutli-faceted analysis*. (Princeton, NJ: Markus Weiner Publications, Inc.)

Kleinman, G., D. Palmon and P. Lee. (2003). The Effects of Personal and Group Level Factors on the Outcomes of Simulated Auditor-Client Groups. *Group Decisions and Negotiations*, 12: 57-84.

Kleinman, G. and D. Palmon (2000a). A negotiation-oriented model of auditor-client relationships. *Group Decisions and Negotiations*. Winter, 2000, 17-45.

Kleinman, G. and D. Palmon. (2000b). The Auditor-Client negotiation game and instructor's notes. *Journal of Accounting Case Research*, Vol. 5(2).

Koehler, J. J. (1993). The influence of prior beliefs on scientific judgments of evidence quality. *Organizational Behavior and Human Decision Processes*, Vol. 56:28-55.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, Vol. 108(3): 480-498.

Lehmann, C. M. and C. S. Norman. (2006). The effects of experience on complex problem representation and judgment in auditing: An experimental investigation. *Behavioral Research in Accounting*, 18: 65-83.

Lewicki, R. J., D. M. Saunders and B. Barry (2005). *Negotiation*. (NY: McGraw-Hill/Irwin).

Libby, R., R. Bloomfield, and M. W. Nelson (2002). Experimental research in financial accounting. *Accounting, Organizations and Society*, Vol. 27: 775-810.

Libby, R. and J. Luft (1993). Determinants of judgment performance in accounting settings: Ability, knowledge, motivation and environment. *Accounting, Organizations and Society*, 18(5): 425-450.

Loftus, E. H. (2003). Our changeable memories: Legal and practical implications. *Nature Reviews*, Vol. 4: 231-234.

Loftus, E. H. and H. G. Hoffman (1989). Misinformation and memory: The creation of new memories. *Journal of Experimental Psychology: General*, Vol. 118(1): 100-104.

Luthans, F. (1995). *Organizational Behavior*, Seventh Edition. (NY: McGraw-Hill, Inc.).

Mannix, E. and M. A. Neale (2005). What differences make a difference? The promise and reality of diverse groups in organizations. *Psychological Science in the Public Interest*. Vol. 6(2): 31-55.

Marsh, B., P. M. Todd and G. Gigerenzer (2004). Cognitive heuristics: Reasoning the fast and frugal way. In J. P. Leighton and R. J. Sternberg (eds.), *The Nature of Reasoning*. (NY: Cambridge University Press), pp. 273-287.

Mayer, R. E. (2003). What causes individual differences in cognitive performance? In R. J. Sternberg and E. L. Grigorenko (eds.), *The Psychology of Abilities, Competencies, and Expertise*. (NY: Cambridge University Press, 2003): pp. 263-274.

Messier Jr., W. F., W. C. Quilliam, D. E. Hirst and D. Craig (1992). The effect of accountability on judgment: Development of hypotheses for auditing. *Auditing: A Journal of Practice & Theory* 11(Supplement): 123-151.

Nelson, M. and H. T. Tan (2005). Judgment and decision making research in auditing: A task, person, and interpersonal interaction perspective. *Auditing: A Journal of Practice & Theory*. Vol. 24(Supplement): 41-71.

Nickerson, R. S. (2004). Teaching reasoning. In J. P. Leighton and R. J. Sternberg (eds.), *The Nature of Reasoning*. (NY: Cambridge University Press), pp. 410-442.

Orr, D. and C. Guthrie (2006). Anchoring, information, expertise, and negotiation: New insights from meta-analysis. *Ohio State Journal on dispute resolution*. 597-628.

Paredes, T. A. (2003). Blinded by the light: Information overload and its consequences for security regulation. *Washington University Law Quarterly*, Vol. 81: 417-485

Perkins, D. and S. Tishman (1998). Dispositional aspects of intelligence. Working paper found at <http://learnweb.harvard.edu/alps/thinking/docs/Plymouth.pdf> on 3/23/2007.

Rabin, M. (1998). Psychology and economics. *Journal of Economic Literature*, Vol. 36(1).

Rich, J. S., I. Solomon, and K. Trotman (1997). Multi-auditor judgment/decision-making research: A decade later. *Journal of Accounting Literature*, 16: 86-126.

Shelton, S.W. 1999. The effect of experience on the use of irrelevant evidence in auditor judgment. *The Accounting Review* 74(2): 217-224.

Stanovich, K. E. (1999) *Who is rational. Studies of individual differences in reasoning*. (Mahwah, NJ: Erlbaum.)

Stanovich, K. E., W. C. Sà, and R. F. West (2004). Individual differences in thinking, reasoning, and decision-making. In J. P. Leighton and R. J. Sternberg (eds.), *The Nature of Reasoning*. (NY: Cambridge University Press), pp. 375-409.

Stefaniak, C. (2006). When auditors err: How mistake significance and professional image influence staff auditors' likelihood to admit a mistake. Accounting and Behavior in Organizations AAA Conference, September, 2006.

Tanner, D. (1986). *That's not what I meant! How conversational style makes or breaks relationships*. (NY: Ballantine Books, Inc.)

Thorne, L. and J. Hartwick (2001). The directional effects of discussion on auditors' moral reasoning. *Contemporary Accounting Research*, 18(2): 337-361.

Wüstemann, J. and C. Koch (6/26/2006). Behavioral research in auditing: A comprehensive review of bias research in auditing with a focus on how psychology and economics-based research can profit from each other. Working paper prepared for the “Wirtschaftswissenschaftliches Forschungsseminar”, University of Freiburg, Germany.