

EVALUATING THE STRENGTH OF TAX AUTHORITIES:
HOW EXPERIENCE AFFECTS THE ASSESSMENT AND COMBINATION OF SOURCE
AND RELEVANCE

by

ANNE M. MAGRO
Associate Professor

SARAH E. NUTTER
Associate Professor

School of Management
George Mason University
4400 University Drive, MS5F4
Fairfax, VA 22030

Corresponding author: Anne M. Magro, amagro@gmu.edu, 703-993-1765

January 21, 2009

I. Introduction

In this paper, we examine the effects of tax decision making experience on the assessment and combination of tax authority characteristics during the tax authority evaluation process. The evaluation of tax authorities has always been a key component of tax professional decision making, but FASB Interpretation 48: Accounting for Uncertain Tax Positions (FIN 48) brings such evaluations to the forefront for financial accountants and auditors as well (FASB 2006).

FIN 48 requires an annual evaluation of all uncertain tax positions to determine if they should be recognized in the financial statements. Only those positions that the company determines are “more-likely-than-not” to be sustained on their technical merits can be recognized. An analysis of the technical merits requires evaluation of tax authorities (FASB 2006). Just as companies are now required to conduct an annual assessment of all uncertain tax positions, their auditors must audit such positions on an annual basis. The AICPA has identified reviewing and testing the process by which the estimates are generated and generating an independent estimate as the two most practicable approaches to auditing uncertain tax positions under FIN 48 (AICPA 2006). AICPA guidance explicitly names evaluation of tax authorities as a necessary step in both approaches to auditing the estimate. Tax professionals also will be called upon to do additional evaluation of tax authorities as both those working for the company and those who work as tax consultants likely will be called upon to assist the financial accountants in making the “more-likely-than-not” assessment required for FIN 48. Information search and evaluation have always been fundamental processes in tax decision making (Magro 2005), but with the advent of FIN 48 an understanding of how decision makers assess the strength of tax authorities has much wider significance.

Normatively, the strength of a tax authority is an objective function of its source, relevance, and persuasiveness (AICPA 2000; Treas. Reg. §1.6661-3(b)(3)), but professional judgment is required at several points in the assessment process. Prior research has shown that information search and evaluation may be affected by characteristics of the setting or the individual decision maker (e.g., Johnson 1993, Cloyd 1995, Cloyd and Spilker 1999, 2000, Barrick 2001, Hatfield 2001, Magro 2005), but no prior research has investigated the fundamental process by which decision makers assess and combine source, relevance, and persuasiveness of tax authorities to assess their strength. In this study, we examine the (1) the effects of authority source on authority strength, (2) the effects of authority relevance on authority strength, (3) the effects of experience on the assessment of the relevance of authorities to a particular client fact pattern, and (4) the effects of experience on the combination of source and relevance in authority strength assessment.

We consider the tax authority assessment process through the declarative and procedural knowledge framework (Anderson 1980; Rumelhart and Norman 1981). Declarative knowledge is knowledge of “what” whereas procedural knowledge is knowledge of “how.” We argue that knowledge of the different tax source and relevance levels and their independent contribution to strength is declarative knowledge generally taught in undergraduate and graduate tax classes. In contrast, how to assess the relevance of tax authorities and how to combine source and relevance when assessing authority strength is procedural knowledge that is acquired with experience. The specific types of procedural knowledge required to assess relevance and appropriately combine source and relevance are analogical reasoning (Gentner 1989; Marchant et al. 1991; Gentner and Markman 1997) and configural information processing (Brown and Solomon 1990, 1991).

Relying on this framework, we predict that experience will affect the assessment of relevance and the combination of source and relevance in the assessment of authority strength. Specifically, we predict that holding persuasiveness constant (1) source will affect authority strength for all decision makers, (2) relevance will affect authority strength through its effect on assessed relevance, (3) experienced decision makers will assess relevance of authorities differently than will inexperienced decision makers (specifically, experienced decision makers will recognize the relevance of indirectly relevant authorities while inexperienced decision makers will not), and (4) controlling for differences in how different experience levels assess the relevance of authorities, experienced decision makers will combine source and relevance differently than will inexperienced decision makers (specifically, experienced decision makers will exhibit configural processing in their combinations and inexperienced decision makers will not).

To test these hypotheses, we conducted an experiment using tax managers and graduate tax students as participants. Authority source and relevance were manipulated within participant and experience, assessed authority strength and assessed relevance were measured variables. As predicted, source and relevance affected assessed authority weights but assessed relevance and the combination of source and relevance differed with experience group. That is, experienced decision makers appeared to use analogical reasoning to recognize the relevance of indirectly relevant authorities, and the inexperienced decision makers did not. Further, the experienced participants combined source and relevance configurally such that irrelevant authorities had low strength even if from a strong authority source while inexperienced participants did not exhibit configural processing.

This study makes several contributions to the literature. First, while prior studies have addressed the factors that may lead to bias in the tax research process, this study is the first to address the fundamental processes of evaluating and combining authority source and relevance. Before we can fully understand how and why individual and context factors affect the identification, evaluation, and selection of authorities, it is important to understand the underlying authority strength assessment process. Second, this study addresses how experience in tax decision making affects this process. Experience differences are important in the financial reporting of tax positions under FIN 48, the auditing of such opinions, and within the domain of traditional tax decision making. If auditors and financial accountants are less experienced evaluators of tax authorities, their assessed authority strengths and the risk assessments that rely on those strength assessments may differ from those of a client's tax advisers.

In addition, tax decision making takes place in a hierarchical decision making setting where relatively less experienced tax decision makers conduct tax research and provide the products of that research for use in the decision processes of more experienced tax professionals (Cloyd 1995; Alexander 2003; Magro 2005). To the extent that differences exist across experience groups, the tax researchers may not be identifying and selecting the set of authorities the experienced decision makers would have generated on their own. This mismatch has implications for the efficiency and effectiveness of the tax decision making process (see e.g., Barrick, Cloyd and Spilker 2004). Finally, while this study was conducted in a tax setting, the theory generalizes to other accounting settings that require the identification, evaluation, and selection of information. In any such setting, decision makers who have not been explicitly taught how to assess relevance or who have not had the opportunity to learn the skill through experience with the task may make different decisions and choices than would someone with

greater knowledge or experience. To the extent such differences lead to the selection of wrong information or the incorrect assessment of information strength, performance may be impaired.

In the next section, we develop our theory and hypotheses, and in Section III we describe the experimental method. In Section IV, we present results and discussion, and the final section contains conclusions, limitations, and directions for future research.

II. Theory and Hypotheses

Professionals bring to bear on decision problems their specialized knowledge and domain specific experience to provide judgments that nonprofessionals could not provide. Within a profession, there may be variation in judgments across professionals as a result of factors such as knowledge (resulting from differences in education, training, or experience), ability, or effort (Libby and Luft 1993). Nonetheless, a hallmark of professionalism is the sense that multiple professionals considering the same information set would come to similar conclusions (Einhorn 1974). As such, gaining an understanding of the impact such individual factors have on judgments is important because such an understanding can help us identify when and why professionals differ in their judgments. Further, knowledge of when and why professional judgments differ is the first step to reducing or eliminating such variation.

Importance of authority strength assessment

Information search and evaluation are fundamental processes in most professional decision making tasks, but they are of particular importance in the tax domain (Magro 2005). Tax research, the underpinning of all significant tax decision making whether conducted by tax professionals or by auditors under FIN 48, entails (1) identifying issues, (2) searching for, selecting, and documenting authorities, (3) forming conclusions, and (4) assessing risks, including the likelihood of success assessment required under FIN 48 for financial reporting of

uncertain tax positions (Magro 2005). The assessment of authority strength (whether or not explicitly done) is important in at least three stages of tax research: (1) the selection of authorities, (2) the formation of conclusions, and (3) the assessment of risks.

When selecting an authority from a large set of potential authorities, decision makers must determine whether an authority is important enough to merit selection. That is, the decision maker has some internalized belief about the characteristics of authorities that are “good enough” and considers each identified authority to determine if it meets the threshold. Such a judgment requires at a minimum an implicit assessment of the strength of the authority, but some decision makers may assess strength explicitly. Further, the processes of forming conclusions and assessing risks of tax positions rely on authority strength assessments.

With the advent of FIN 48, the process of tax position risk assessment has come to the forefront for financial accountants and auditors as well as tax professionals. While this may be done informally for the purposes of conclusion formation, the Internal Revenue Code and the AICPA’s Statement of Standards for Tax Services (AICPA 2000) both explicitly require that tax professionals assess the weight or strength of tax authorities before recommending a position to a client or taking a position on a tax return. Further, FIN 48 requires an enterprise to determine whether it is more-likely-than-not that a tax position will be sustained upon examination based on the technical merits of the position. The Interpretation goes on to say, “Technical merits of a tax position derive from sources of authorities in the tax law (legislation and statutes, legislative intent, regulations, rulings, and case law) and their applicability to the facts and circumstances of the tax position.” (FASB 2006, 2) The AICPA FIN 48 Practice Guide (AICPA 2006) details how auditors become involved in the tax position risk assessment. The Practice Guide lays out two preferred methods for assessing estimates for uncertain tax positions prepared by the client.

The auditor may review and test management's estimate development process or develop an independent estimate to corroborate that of management. Both approaches require the consideration of tax authority strength. If the auditor chooses to review and test the process, the Practice Guide instructs the auditor to ensure that "relevant, sufficient, and reliable data" (AICPA 2006, 10) form the basis of the estimate. Such data include tax authorities, and the determination that they are relevant, sufficient, and reliable requires an assessment of their strength. Further, if the auditor chooses to form an independent assessment, she must identify and evaluate relevant tax authorities to determine the likelihood of sustaining the position based on its technical merits.

Because accounting professionals are required to assess the strength of authorities by regulators and professional bodies, it is important to understand how and how well the assessment process works. Normatively, the strength of an authority should not be affected by individual factors such as experience or knowledge or by contextual features like time pressure, client preferences, or accountability. Descriptively, however, such factors have been shown to affect information search and evaluation. Below we address authority strength assessment from a normative perspective then follow with a discussion of the descriptive literature. Finally, we develop theory with respect to the components and subprocesses of the authority strength assessment and the effects of experience thereon.

Normative assessments

Tax professionals who are CPAs are governed by the enforceable professional standards embodied in the Statements on Standards for Tax Services (SSTS) (AICPA 2000) which are part of the Institute's Code of Professional Conduct. Interpretation 1-1, Realistic Possibility Standard, of SSTS No. 1, Tax Return Positions, explicitly instructs members to "*consider the*

weight of each authority to conclude whether a position meets the realistic possibility standard.” (emphasis added) (AICPA 2000, p. 13) Members are further instructed to assess the weight of an authority by considering its “source, relevance, and persuasiveness.” (AICPA 2000, p. 13) The Treasury Regulations mirror this instruction (Treas. Reg. §1.6661-3(b)(3)).¹ To meet statutory requirements, the tax professional must consider all *relevant* authority and objectively evaluate the strength of those authorities by considering the source, relevance, and persuasiveness of each. While no prior studies have directly addressed the combined effects of these normative factors on the strength assessment process, prior work has provided insight as to the extent to which tax professionals conduct *objective* information search and evaluation.

Descriptive literature

Only a few prior studies directly address the issue of authority or position strength assessment in tax. Johnson (1993) manipulated the outcomes of tax cases and found that participants assessed greater authority strength when the outcome of the case matched the client’s preferred outcome. This led to a stronger recommendation to the client to take the preferred position. Cuccia, Hackenbrack, and Nelson (1995) manipulated the ambiguity of a standard and found that participants met their necessary support threshold by assessing a lower necessary level of support when the standard was ambiguous and higher strength of supporting evidence when the standard was not ambiguous. Similarly, Spilker, Prawitt, and Worsham (1999) found that ambiguity of the law and context interact such that evidence is seen as stronger when the law is ambiguous in the compliance context and unambiguous in the planning context. Finally, Hatfield (2001) found that accountability affects information evaluation such that evidence is biased toward the client’s preference. Together these studies suggest that authority

¹ These instructions are relevant in the tax planning context as well because SSTS No. 8, Form and Content of Advice to Taxpayers, requires any tax advice given to a taxpayer to meet the same standards put forth in SSTS No. 1 and its interpretations.

evaluation, while prescribed to be an objective process, is not so in practice. Tax professionals seem to assess the strength of authorities or evidence to support the client's preferred position.

Further evidence on the effects of individual and context factors on authority evaluation in tax is indirect. Studies of *information search* may provide indirect evidence of the effects of factors such as client preference, knowledge, and perceived objectivity of the researcher on *information evaluation* if decision makers use an "assess and compare to threshold" approach to information selection. Cloyd and Spilker (1999, 2000) found that tax professionals viewed more cases supporting the client's preferred position, spent more time on supporting cases than on cases that supported other positions, and selected more supporting cases for use in memos. These results could obtain because tax professionals assess greater strength for supporting cases, because they set a lower threshold for supporting cases than for others, or because of a combination of strength assessment and threshold setting differences. Knowledge and experience lead to improvements in the identification of relevant tax authorities during information search (Cloyd 1995, Spilker 1995, Barrick and Spilker 2005), and tax professionals conduct more balanced search when practice risk is high (Kadous et al. 2008). The perceived objectivity of the information provider affects the information search and evaluation process (Hatfield 2001, Alexander 2003), and the context of the decision (planning/compliance) interacts with the tax professional's institutional knowledge to drive the types of authorities accessed during information search (Magro 2005). Together these studies suggest that individual and contextual factors may affect information search, causing it to be less objective than the standards require.

In sum, the direct and indirect evidence on the factors that affect evidence evaluation tell us that multiple individual or environmental factors affect the process but tell us little about the

process itself or which component of the assessment judgment is affected by each factor. In this study, we step back to the fundamental authority strength assessment judgment and address the components of authority strength, how they are combined, and how one factor, experience, specifically impacts the components and their combination.

Assessing authority strength

In theory, the assessment of authority strength should be a fairly straight forward judgment. The standards call for the objective combination of authority source, relevance, and persuasiveness² to determine authority strength. *Ceteris paribus*, an authority from a more authoritative source should be stronger than one from a less authoritative source, an authority that is more relevant should be stronger than one that is less relevant, and one that is more persuasive should be stronger than one that is less persuasive. Difficulties arise when we consider that while the source of an authority should be readily apparent, relevance and persuasiveness are not. The latter two must be assessed by the decision maker – that is, the strength assessment judgment is made up of component judgments. To assess the strength of an authority, the decision maker must identify the source of the authority, assess the relevance and persuasiveness of the authority, and then combine those judgments into an assessment of authority strength. These steps require a combination of knowledge and skills which may be acquired through education and training or through experience.

One way to characterize the different knowledge and skills necessary to successfully complete this decision task is by considering the distinction between declarative and procedural knowledge made by cognitive psychologists [Anderson (1980) and Rumelhart and Norman (1981)]. Declarative knowledge is defined as knowledge of particular facts and relationships

² Persuasiveness refers to the internal logic and consistency of the authority, i.e., the quality of the reasoning. While authorities occasionally are found lacking in this regard, in general there is little variation on this dimension. As such, to simplify the research design, we have not considered persuasiveness in this study.

while procedural knowledge is defined as knowledge of how to do something (that is, a skill). For example, the knowledge of what a bike is, the function it serves, and the mechanics of its operation are declarative knowledge while the knowledge of how to ride a bike is procedural knowledge. An individual can possess declarative knowledge without related procedural knowledge, but it is unlikely that an individual would possess procedural knowledge without at least some of the related declarative knowledge. Psychology research suggests that the possession of procedural knowledge and more extensive declarative knowledge is what distinguishes more experienced from less experienced decision makers in a given domain.

If declarative knowledge is defined as knowledge of facts, declarative knowledge in tax includes knowledge related to both the source and relevance of tax authorities. Procedural knowledge in tax would include the knowledge of how to determine the relevance of tax authorities and how to combine the source and relevance of a tax authority to form a holistic judgment of its strength. We begin with a consideration of declarative knowledge in tax with respect to both source and relevance, and then address procedural knowledge with respect to assessing relevance and combining source and relevance. Our hypotheses are discussed below and summarized graphically in Figure 1.

Source. Tax standards require the consideration of authority source when assessing the strength of authorities. Declarative knowledge for this component of authority strength is generally acquired through formal education and training. Primary tax authorities are promulgated by the three branches of the federal government (legislative, executive, and judicial

branches),³ and accounting students generally learn about these sources and their relative weights in their undergraduate tax class. Students who go on to earn a Masters degree in tax (as a large proportion of tax professionals do) will learn more about sources and their weights in graduate courses. Prior research suggests that while tax professionals often disagree about how to rank certain authorities from the judicial branch relative to authorities from the executive branch, they exhibit consensus with respect to the general ordering of the Internal Revenue Code, Regulations, appellate court decisions, Revenue Rulings, and Private Letter Rulings (Samelson and Schloemer 1996; Chow et al. 1989; Savage et al. 1995). Because knowledge about sources and their relative weights is declarative knowledge generally acquired through education, we expect source to have a similar effect on authority strength assessments for both more and less experienced tax decision makers.

H1: Assessed strength of tax authorities increases with the authority level of the source of the authority for more and less experienced tax decision makers.

Relevance. Tax standards also require the consideration of relevance when assessing authority strength. Declarative knowledge with respect to relevance of authorities would include the basic knowledge that different levels of relevance exist. An individual might know that with respect to a particular issue authorities can be directly relevant, indirectly relevant,⁴ or irrelevant. Declarative knowledge with respect to relevance also would include knowledge about the relative strengths of these levels of relevance. For example, a decision maker might know that an authority that is directly relevant is stronger than an indirectly relevant authority and that both are stronger sources than is an irrelevant authority, *ceteris paribus*. Like knowledge of the tax

³ The legislative branch writes the Internal Revenue Code, the judicial branch issues court decisions from varying levels of court, and the executive branch issues Regulations, Revenue Rulings, Private Letter Rulings and other authorities.

⁴ An authority that is indirectly relevant is an authority about a different problem or issue from which an analogy can be drawn to assist in the determination of an appropriate tax treatment for the current client.

authority source hierarchy, the levels of relevance and relative strengths of each are explicitly taught in undergraduate and graduate tax classes. As such, both more experienced and less experienced individuals in tax are expected to possess this knowledge.

While relevance is expected to influence authority strength assessments, it is not a direct effect. That is, when assessing authority strength, a tax decision maker does not know the relevance of an authority in the same way that she can know the source of the authority. Instead, she would have to read and assess the authority to form a judgment about its relevance. There are many idiosyncratic factors that influence the assessment for relevance. Thus, the effect of relevance on authority assessment is thus mediated by an individual's relevance assessment.

This leads to the second hypothesis:

H2: Assessed strength of tax authorities increases with the relevance of the authority, and that relation is mediated by assessed relevance.

While knowledge of the existence of different levels of relevance and the relative weight to be given to authorities of each type can be characterized as declarative knowledge, the ability to assess authority relevance is a skill that is appropriately characterized as procedural knowledge. This procedural knowledge may be acquired through feedback from the review process, peer feedback, audit or litigation outcomes, exposure to a significant number of cases in the research process, or experience as a reviewer. Structural alignment theory (Gentner and Markman 1997) provides a framework for understanding the assessment of authority relevance. Structural alignment theory is simply a generalization of Gentner's (1989) structure mapping theory of analogy to additional judgments such as similarity or categorization. According to this model, decision makers compare scenarios by structurally aligning two mental representations such that the most structurally consistent match is made between elements of the two scenarios. Structurally consistent matches satisfy the constraints of parallel connectivity and one-to-one

mapping (Gentner and Markman 1997). Parallel connectivity requires that if two objects are to be matched, their relation must also match. For example, if a note is given in exchange for cash in one scenario and cash is given in exchange for a bond in another scenario, the note in the first scenario and the cash in the second scenario must be matched because they are each the thing given. Similarly, the cash in the first scenario and the bond in the second scenario would be matched because they are each the things received. In this model, the structural relations (given in the exchange, received in the exchange) are more important than features of the objects themselves (cash, bond, note). One-to-one mapping simply means that each object is matched to no more than one object in the other scenario. The skill of structural mapping is not explicitly taught, but it is acquired through experience.

Prior research addressing the use of analogy in tax decision making is limited. Marchant et al. (1991, 1992, 1999) show mixed effects of experience on the use of analogy. Because less experienced tax decision makers have had fewer opportunities to assess the relevance of authorities through structural alignment and less opportunity to develop knowledge of structural relations in tax relative to more experienced decision makers, we expect the two groups to assess the relevance of tax authorities differently. Specifically, we expect all tax decision makers to be able to recognize the relevance of authorities that are on point, i.e., directly relevant to the fact pattern under consideration. These authorities share both surface and structural features with the client's fact pattern. More experienced tax decision makers, however, should be better able to assess the relevance of indirectly relevant authorities in which the underlying structure of the transaction is similar to the fact pattern under consideration, but the surface features are not.⁵

⁵ Davis and Mason (2003) argue that support for a tax position depends on the assessed similarity of an authority to the client's fact pattern relying on Tversky's (1977) model of similarity judgment. They find that common features of the authority and taxpayers facts drive similarity judgments. Structural alignment theory is more general in that it considers both surface and structural features in the analogy process.

Further, more experienced tax decision makers should be able to ignore surface similarities and correctly identify irrelevant tax authorities. This difference in assessed relevance across experience levels will translate to differences in the assessed strength of tax authorities for more and less experienced tax decision makers.

H3a: Experience moderates the relation between relevance and assessed relevance such that more experienced tax decision makers will assess greater relevance for authorities that are indirectly relevant than for those that are irrelevant but less experienced tax decision makers will not.

H3b: Experience moderates the relation between relevance and assessed authority strength.

Combining source and relevance. Identifying the source and assessing the relevance of tax authorities are just the first steps in the assessment of tax authority strength. Judgments about the source and relevance of an authority must somehow be combined to determine the strength of that authority. Source and relevance are not additive. While level of source should matter for a directly or indirectly relevant authority, the same is not true for irrelevant authorities. That is, an irrelevant authority from a high level source is no stronger than a low level source – both are irrelevant. Normatively, the effect of a given level of source on assessed authority strength should differ for different levels of authority relevance.

H4: Relevance moderates the effect of authority source on assessed authority strength such that assessed strength increases in authority source for directly and indirectly relevant authorities but has no effect for irrelevant authorities.

Combining component judgments to form the overall assessment is another type of procedural knowledge that should be acquired with experience. Such combination of source and relevance where the effect of one factor relies on the level of another factor is termed *configural processing*. Prior research in auditing provides mixed results with respect to the presence of configural processing in accounting professional judgment. Some studies show no signs of configural processing by auditors (e.g., Ashton 1974; Ashton and Kramer 1980; Ashton and

Brown 1980; Hamilton and Wright 1982; Hall et al. 1982; Trotman et al. 1983; Zin et al. 2000) while others demonstrate configural processing and the effects of various individual and contextual features on the extent of such processing (Brown and Solomon 1990, 1991; Kerr and Ward 1994; Hooper and Trotman 1996; Choo and Firth 1998; Leung and Trotman 2005).

Importantly, Brown and Solomon (1990, 1991) and Choo and Firth (1998) suggest that domain-specific knowledge is an important determinant of the use of configural information processing. For example, Brown and Solomon consider an internal control assessment task and argue that without specific knowledge of internal controls and their relations, participants cannot engage in configural processing. The domain-specific knowledge that drives configural information processing in the tax research authority evaluation task is not knowledge of technical tax, but rather specific knowledge of authority source and relevance and their relations. Thus, the domain-specific knowledge examined in this study is the knowledge of how to weigh and combine source and relevance in the tax-research setting. Ganzach (1994) argues that experts use configural processing because they rely on configural theories wherein they understand that the weight of one attribute varies as a function of the weight of another attribute. To the extent that domain-specific knowledge including knowledge of the relations between factors facilitates use of configural information processing, more experienced tax decision makers who have had greater opportunity to acquire such knowledge are more likely to demonstrate configural information processing. Less experienced tax decision makers with limited experience assessing the strength of authorities likely do not possess domain-specific knowledge of the configural nature of the combination process. Without the configural theory relating source and relevance,

less experienced tax decision makers may be affected by the source of the authority even when the authority is irrelevant.⁶

Complicating this relation, however, is the fact that experienced and inexperienced tax decision makers also are expected to assess authority relevance differently. Specifically, less experienced tax decision makers are expected to be unable to distinguish indirectly relevant and irrelevant authorities. To address issues specific to authority source and relevance combination, it is necessary to control for differences in authority relevance assessment and then consider the combination process.

H5: Controlling for differences in assessed authority relevance, more and less experienced tax decision makers will combine authority source and relevance differently when assessing authority strength.

Together these predictions suggest that authority source and relevance jointly affect assessed authority strength but that experience affects that relation through its effect on relevance assessment and authority source and relevance combination. In the next section, we describe an experiment designed to test these predictions.

III. Research Method

Materials and design

We tested the hypotheses using an experiment with a 3 (relevance) X 4 (source) X 2 (experience) full-factorial design. Experience was measured between participants, and relevance and source were manipulated within participant. The experimental instrument consisted of a description of the task environment and client facts with respect to an estate tax issue. The primary tax issue involved was determining whether the proceeds paid to a beneficiary from a life insurance policy held in trust must be included in the gross estate of the deceased. The

⁶ Alternatively, Ganzach (1994) argues that non-experts may use more configural processing than experts as complexity increase because non-experts simplify the decision process by focusing on one level of an attribute and assessing the effect of the other in relation to that one level.

experimental task was completed in the compliance setting where the transactions in question have already occurred and the tax professional's task is to gather and evaluate authority to determine the appropriate treatment of the item on the client's return. We instructed participants to assume the role of a manager in the tax department of a public accounting firm who had assigned a staff member to conduct research to resolve a client's compliance issue(s). Twelve tax authorities representing all possible combinations of source and relevance followed the description. The tax authorities presented in the instrument were described as the authority set generated by the tax staff during his tax research process. Participants were instructed to independently evaluate the strength of each authority in relation to the client's particular situation. After completing the strength assessment task, participants completed a demographic questionnaire and assessed the relevance of the authority.

Each of the authorities in the experimental instrument was presented on a separate page. At the bottom of each page, participants marked the assessed strength of the authority on a 100-point scale. The order of authority presentation was random with the following exception: the three authorities from the Internal Revenue Code and Regulations were always presented before any other authorities, and order within the Internal Revenue Code/Regulations group was random. The IRC and Regulations sections were always presented first because evaluation of other sources in tax relies on knowledge of the statutory law, and tax research generally begins with a determination and examination of the appropriate Internal Revenue Code section(s).

Participants

Fifteen tax professionals and 15 Masters of Tax students participated in the experiment.⁷ The tax professionals were managers in the international corporate tax group at an international accounting firm. The tax professionals' mean years of experience in tax practice was 7.1 with a range of 4 to 10 years. Eleven of the managers had earned an advanced degree (M. S., M. B. A., or J. D.), and each was a CPA. A partner in the firm distributed the instruments to the tax managers and then collected and returned the completed instruments. The tax professionals had no tax practice experience in estate, gift, and trust taxation. The student participants were enrolled in a tax research class in a Masters program at a large state university. None of the students had any tax practice experience, but two of the students were CPAs. The students completed the experiment in their tax research class.

Manipulations and measurements of variables

Relevance. Relevance was manipulated at three levels: directly relevant, indirectly relevant, and irrelevant. Directly relevant authorities contained information that was necessary to determine the correct treatment of the life insurance proceeds, and the facts and underlying structure of these authorities were similar to those presented in the description of the client's situation. Indirectly relevant authorities had underlying structure similar to the client's situation, but surface features did not match those of the client. Irrelevant authorities had surface features that were similar to the client's situation, but the authorities were not informative on substantive issues with respect to the appropriate resolution of the client's issues. Participants indicated their assessment of relevance on a 7 point scale with anchor points of "directly addresses relevant

⁷This discussion does not include two student participants whose responses were excluded from the analysis. One student did not complete the task for personal reasons. The other student had several years of tax experience as a tax supervisor in a local accounting firm. This left 15 inexperienced subjects' responses.

issue” (7) and “irrelevant” (1). The midpoint was labeled indirectly relevant. A group of tax professionals and academics with significant tax experience validated the relevance classification scheme prior to the experiment.⁸ Participants in the validation phase received the same materials related to the relevance assessment as the experimental subjects and were asked to determine the relevance of each authority.

Source. Source was manipulated at four levels: Internal Revenue Code/Regulation (IRC/Regs),⁹ appellate court decision (CASE), Revenue Ruling (RevRul), and Private Letter Ruling (PLR). Each authority was constructed and labeled in a format that corresponded to the usual format of the source.¹⁰ For example, IRC/Regs sections were labeled with section number (e.g. Internal Revenue Code §2042 or Treasury Regulation §20.2042-1(c)) and cases were labeled with a citation (e. g. Estate of Jack Reynolds vs. United States of America, U.S. Court of Appeals, 3rd Circuit, No. 83-1199). RevRuls and PLRs were given similarly appropriate labels.

Experience. Experience was a measured variable with tax managers classified as more experienced and masters students as less experienced. The students had received classroom instruction regarding sources of authority and evaluation of relevance and had completed tax research assignments. These students should possess an adequate understanding of the tax research and decision making processes to complete the experimental task. Tax managers were at

⁸ The group included a tax professor, a doctoral student who had been a tax manager, a tax attorney, and two managers identified by the partner as experts in assessing relevance in the estate and gift tax domain from the same international accounting firm as the participants. In the experiment, authorities were classified as directly relevant, indirectly relevant, and irrelevant based on the mean scores reported by the validation group. In all cases, the validation results confirmed the original classification of authorities. If the mean relevance score was greater than 5.5, the authority was classified as directly relevant. If the mean relevance score was between 2.5 and 5.5, the authority was classified as indirectly relevant. If the mean relevance score was less than 2.5, the authority was classified as irrelevant. The mean scores for directly relevant, indirectly relevant, and irrelevant authorities were 6.09, 4.39, and 1.59, respectively.

⁹These were combined in the experiment in response to comments during pilot testing which suggested that Internal Revenue Code and Regulation sections would generally be evaluated together.

¹⁰For the court case level of source, authority was presented in the form of case briefs that are commonly used in tax practice.

a level in the firm at which they would be expected to have extensive recent experience with the evaluation of authorities. In addition, they should have had training, education, and experience with respect to the sources and relevance of tax authorities.

The experimental task involves the evaluation of authorities in relation to an estate tax problem. Because we were not interested in the effects of specialized technical tax knowledge and such knowledge could affect the interpretation of the study's results, we selected participant groups who were unlikely to have such knowledge. By drawing participants from the corporate tax group at the participating accounting firm and from the Masters student population, the likelihood of a participant believing he knew the appropriate treatment of the tax issue in the experimental task was very low.¹¹ This is important because if subjects believe they know the right answer before considering the authority, this knowledge can affect their judgments (Ashton and Ashton 1988; Hogarth and Einhorn 1992). By using a topic with which none of the participants was familiar, any experience effects noted in the study can be attributed to differences in the authority evaluation process rather than differences in technical tax knowledge.

Assessed authority strength and relevance. The primary dependent measure was the assessed strength of the authority. We asked participants to assess the strength of each authority in the determination of the appropriate treatment of the life insurance proceeds. They responded by placing a vertical line through a 100-point scale anchored by the endpoints 0 (labeled "has no bearing on appropriate treatment of life insurance") and 100 (labeled "completely determines appropriate treatment of life insurance"). After completing the authority strength assessment instrument and providing demographic information, participants assessed the relevance of each authority using a 7 point likert scale anchored at 1 by "irrelevant" and at 7 by "directly addresses

¹¹In fact, only one of the participants believed he knew the appropriate treatment after considering only the description of the problem.

relevant issue.”

IV. Results and Discussion

Authority source and relevance

In the first hypothesis, we predict that assessed authority strength increases with authority source. We tested the hypotheses with a repeated measures ANOVA with assessed authority strength as the dependent measure. Source, relevance, and experience were independent measures, and participant was the repeated measure. Descriptive statistics are presented in Table 1 and the ANOVA is reported in Table 2. The mean strength by source and experience group is graphed in Figure 2. As predicted, authority source has a significant effect on assessed authority strength ($F_{3,28} = 33.46, p < .0001$)¹². The effect of source does not differ with experience ($F_{3,28} = 1.79, p = 0.17$). The results are consistent with hypothesis 1 and are presented graphically in Figure 2.

In the second hypothesis, we predict that assessed strength of tax authorities increases with the relevance of authorities, but the relation is mediated by assessed relevance. Following Baron and Kenny (1986), four conditions must exist for mediation to be present. First, the initial variable (here, relevance) must be correlated with the outcome variable (here, assessed authority strength). Second, the initial variable must be correlated with the mediator variable (here, assessed relevance). Third, the mediator variable must be correlated with the outcome variable. Finally, when controlling for the effect of the mediator variable, the effect of the initial variable on the outcome variable becomes insignificant (complete mediation) or becomes less significant (partial mediation). We tested for the predicted relation using regressions for each of the four conditions. The regressions are reported in Table 3.

¹² In fact, a post-experimental survey indicated that participants ranked the sources in the same order.

The first regression shows a relation between relevance and the outcome variable, assessed authority strength ($t = 21.77, p < 0.0001$). The second regression shows a relation between relevance and the mediator, assessed relevance ($t = 34.19, p < 0.0001$). The third regression shows a relation between the mediator, assessed relevance, and the outcome variable, assessed authority strength ($t = 32.56, p < 0.0001$). Finally, in a regression with assessed authority strength as the dependent variable and both relevance and assessed relevance as independent variables, relevance is no longer significant ($t = -0.14, p = 0.89$) and assessed relevance is ($t = 15.86, p < 0.0001$). This analysis suggests that, as predicted, authority relevance has a significant effect on assessed authority strength, but the effect is fully mediated by assessed relevance.

H3a and H3b predict a moderating effect of experience on the relation between relevance and assessed authority strength. Specifically, more experienced tax decision makers are predicted to assess higher relevance for authorities that are indirectly relevant than for those that are irrelevant while less experienced tax decision makers are predicted to assess the same relevance for both. This difference in assessed relevance will translate into different assessed authority strengths. H3a is tested with a repeated measures ANOVA where assessed relevance is the dependent variable and experience and relevance are the independent variables (not tabulated). As predicted, the experience moderates the effect of relevance on assessed relevance ($F_{2,354} = 245.62, p < 0.0001$). Specifically, the more experienced participants' mean assessed relevance for indirectly relevant authorities of 3.91 is greater than that of the irrelevant authorities at 1.17 ($t = -38.05, p < 0.0001$). Interestingly, the less experienced participants' mean assessed relevance for indirectly relevant authorities of 1.39 is actually less than that of the irrelevant authorities at 1.84 ($t = 4.29, p < 0.0001$). As predicted in hypothesis 3b, experience moderates the relation

between relevance and assessed authority strength ($F_{2,28} = 69.13$, $p < 0.0001$). The results are presented graphically in Figure 3. Hypothesis 4 addresses the way in which authority source and relevance are combined to form assessed authority strength. Assessed authority strength is expected to increase with authority source for directly relevant and indirectly relevant authorities but not for irrelevant authorities. The repeated measures ANOVA presented in Table 2 shows a significant source by relevance interaction ($F_{6,28} = 4.92$, $p = 0.002$). Assessed authority strength increases with source for directly relevant (PLR 69.80, RevRul 70.83, CASE 84.10, IRC/Reg 86.33) and indirectly relevant authorities (PLR 26.73, RevRul 35.13, CASE 47.60, IRC/Reg 56.13) as predicted. Contrary to predictions, it also appears to increase with source for irrelevant authorities (PLR 12.53, RevRul 17.67, CASE 17.07, IRC/Reg 25.857). Given the significant interaction between source and relevance, assessed authority strength increases with source across all relevance levels, but the slope differs across levels.

Hypothesis five predicts that beyond any difference in the assessment of authority relevance, more experienced tax decision makers will combine authority source and relevance differently than will less experienced tax decision makers. We test this hypothesis in two ways. First, we use a repeated measures ANCOVA (not tabulated) with assessed authority strength as the dependent variable and source, relevance, and experience as the independent variables. The effect of differential relevance assessment is controlled by using assessed relevance as a covariate in the analysis. After controlling for the differential relevance assessments, the ANCOVA reveals a significant three-way interaction between experience, source, and relevance ($F_{6,28} = 5.46$, $p = 0.001$). The results by experience groups are depicted graphically in Figures 4 and 5. The graphs show a similar pattern for more and less experienced participants with respect to the assessed strength of directly relevant authorities where both groups assessed high levels of

relevance (less experienced group 6.55 vs. more experienced group 6.82), but the results differ markedly for the indirectly relevant and irrelevant authorities.

We also tested this hypothesis by recoding relevance based on the individual participant's assessed relevance rather than the validation group's relevance assessment. That is, using the same criteria as those used to initially classify the authorities as directly relevant (> 5.5 on 7-point scale), indirectly relevant ($2.5 - 5.5$), and irrelevant (< 2.5), we classified each authority's relevance for each participant based on his assessed relevance. For example, an indirectly relevant authority with an assessed relevance of 1.8 by a participant was re-coded as an irrelevant authority for that participant because the assessed relevance was below the cut-off of 2.5. We then ran the repeated measures ANOVA with assessed authority strength as the dependent variable and source, participant -specific relevance, and experience as the independent variables.

In this analysis, the three-way interaction between experience, source, and relevance remains significant ($F_{6,28} = 19.74, p < 0.0001$). This suggests that more and less experienced participants combine source and relevance differently. The biggest difference between the two groups is in their strength assessments for the irrelevant group. The more experienced group's mean assessed authority strengths of PLR (3.23), RevRul (9.69), CASE (6.5), and IRC/Reg (9.6) are all very close to zero as predicted when configural processing is used. That is, the source of an authority is not important if it is not relevant. In contrast, the less experienced group's mean assessed authority strengths were: PLR (13.96), RevRul (17.51), CASE (29.45), and IRC/Reg (38.12). Not only are these assessments all greater than zero (all p-values less than 0.05), but they also increase in source. That is, less experienced tax decision makers are unable to use configural processing to appropriately combine source and relevance even when their own relevance assessments are used to classify authority relevance.

V. Conclusions

The strength of a tax authority should be determined by its source, relevance, and persuasiveness, but the assessments of strength and its components are judgments that are affected by individual differences across decision makers. For more and less experienced tax decision makers in this study, source affected authority strength in the same way but relevance did not. More experienced tax decision makers were able to distinguish indirectly relevant and irrelevant authorities, while less experienced participants appeared unable to do so. Further, more and less experienced tax decision makers combined source and assessed relevance differently for authorities that were not directly relevant to the client's situation.

More experienced tax decision makers in this study reported assessed strengths that are consistent with accepted rankings for the sources and relevance types used in the study. Authority strength decreased with level of source authority for the relevant authorities (directly and indirectly relevant) and was uniformly low for irrelevant authorities. Less experienced tax decision makers appropriately used source in assessing authority strength, but they did not exhibit configural processing when combining source and relevance such that strength increased with source even for those authorities the less experienced tax decision makers assessed as irrelevant. Experience appears to provide tax decision makers with the opportunity to acquire the procedural knowledge necessary to use analogy to determine the relevance of authorities and to use configural processing when combining the source and relevance of authorities in strength assessment.

This study has implications for both practice and education. As FIN 48 is implemented and financial accountants and auditors become more directly involved in the process of tax research and the auditing of such processes, evidence that some aspects of the process can be

taught and that others are developed with experience may be particularly important. In addition, these results suggest that the authority sets generated by less experienced tax decision makers might well exclude indirectly relevant authorities that more experienced tax decision makers (such as managers) would consider appropriate authorities to consider when making decisions. If the authority strengths assessed by managers are accepted as appropriate or acceptable assessments, educators and training staff may be able to teach students and new staff to process the source and relevance of authorities in a fashion similar to that of managers. The results of this study suggest that such training and education should focus on determining authority relevance and assigning appropriate weight to indirectly relevant and irrelevant authorities. These goals are likely best achieved by direct experience with the assessment of relevance and authority strength.

Researchers in the future could study differences in the tax research and authority evaluation judgments of tax professionals, auditors, and financial accountants. Particular attention should be paid to the effects of different knowledge types, task-specific experience, and incentives. Future research also could attempt to identify the types of experiences that contribute to the acquisition of procedural knowledge investigated in this study and the points at which a tax professional has these experiences in his career. If this knowledge is acquired immediately upon entering the accounting profession, the differences noted in this study may not be particularly important. However, if this knowledge is not acquired until later in the tax professional's career, efficiency and effectiveness of tax decision-making may be negatively impacted until such knowledge is acquired.

VI. References

- AICPA. 2000. *Statement on Standards for Tax Service*. American Institute of Certified Public Accountants: New York.
- AICPA. 2006. *Practice Guide on Accounting for Uncertain Tax Positions Under FIN 48*. American Institute of Certified Public Accountants: New York.
- Alexander, R. 2003. The effects of source credibility on tax professional judgment in consulting engagements. *The Journal of the American Taxation Association* 25: 33-49.
- Anderson, J. 1980. *Cognitive Psychology and Its Implications*. San Francisco: W. H. Freeman.
- Ashton, R. 1974. An experimental study of internal control judgments. *Journal of Accounting Research* 12(1): 143-157.
- Ashton, A., and R. Ashton. Sequential Belief Revision in Auditing. *The Accounting Review*. Vol. 63, Iss. 4; p. 623-631. Ashton, R., and P. Brown. 1980. Descriptive modeling of auditors' internal control judgments: Replication and extension. *Journal of Accounting Research* 18(2): 269-77.
- Ashton, R., and S. Kramer. 1980. Students as surrogates in behavioral accounting research: Some evidence. *Journal of Accounting Research* 18(2): 1-15.
- Baron, R. and D. Kenny. 1986. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*. Vol. 51, Iss. 6. p. 1173.
- Barrick, J. 2001. The effect of code section knowledge on tax-research performance. *The Journal of the American Taxation Association* 23(2): 20-34.
- Barrick, J., Cloyd, C., & Spilker, B. (2004, Spring2004). The Influence of Biased Tax Research Memoranda on Supervisors' Initial Judgments in the Review Process. *Journal of the American Taxation Association*, 26(1), 1-19. Barrick, J. and B. Spilker. 2005. The relations between knowledge, search strategy, and performance in aided and unaided information search. *Organizational Behavior and Human Decision Processes* 90(1).
- Brown, C., and I. Solomon. 1990. Auditor configural processing in control risk assessment. *Auditing: A Journal of Theory and Practice* 9.
- Brown, C., and I. Solomon. 1991. Configural information processing in auditing: The role of domain-specific knowledge. *The Accounting Review* 66(1): 100-19.
- Choo, F., and M. Firth. 1998. The effect of time pressure on auditors' configural information processing. *International Journal of Auditing* 2: 21-33.
- Cloyd, C.B. 1995. Prior knowledge, information search behaviors, and performance in tax research tasks. *The Journal of the American Taxation Association* 17.
- Cloyd, C.B., and B. Spilker. 1999. The influence of client preferences on tax professionals' search for judicial precedents, subsequent judgments and recommendations. *The Accounting Review* 74(3): 299-322.
- Cuccia, A., K. Hackenbrack, and M. Nelson. 1995. The ability of professional standards to mitigate aggressive reporting. *The Accounting Review* 70(2): 227-48.

- Davis, J., and J.D. Mason. 2003. Similarity and precedent in tax authority judgment. *Journal of the American Taxation Association* 25(1): 53-71.
- Einhorn, H. 1974. Expert judgment: Some necessary conditions and an example. *Journal of Applied Psychology* (October): 526-77.
- Financial Accounting Standards Board. 2006. *FASB Interpretation No. 48: Accounting for Uncertainty in Income Taxes*. Financial Accounting Foundation: Norwalk, CT.
- Ganzach, Y. 1994. Theory and configularity in expert and layperson judgment. *Journal of Applied Psychology* 79(3): 439-49.
- Gentner, D. 1989. The mechanisms of analogical learning. in *Similarity and Analogical Reasoning*. S. Vosniadou and A. Ortony, eds. London: Cambridge University Press: 199-241.
- Gentner, D., and A. Markman. 1997. Structure mapping in analogy and similarity. *American Psychologist* 52(1): 45-56.
- Hamilton, R. , and W. Wright. 1982. Internal control judgments and effects of experience: Replications and extensions. *Journal of Accounting Research* 20(3): 756-65.
- Hatfield, R. (2001, Spring2001). The Effect of Staff Accountant Objectivity in the Review and Decision Process: A Tax Setting. *Journal of the American Taxation Association*, 23(1), 61-74.
- Hogarth, R., & Einhorn, H. (1992, January). Order effects in belief updating: The belief-adjustment model. *Cognitive Psychology*, 24(1), 1.
- Hooper, C., K. Trotman. 1996. Configural information processing in auditing: Further evidence. *Accounting and Business Research* 26(2): 125-36.
- Johnson, L. 1993. An empirical investigation of the effects of advocacy on preparers' evaluations of judicial evidence. *The Journal of the American Taxation Association* 15(1).
- Kadous, K., A. Magro, and B. Spilker. 2008. Do effects of client preference in accounting professionals' information search and subsequent judgments persist with high practice risk? *The Accounting Review* 83(1): 133-56.
- Kerr, D., & Ward, D. (1994, March). The Effects of Audit Task on Evidence Integration and Belief Revision. *Behavioral Research in Accounting*, 6, 21.
- Leung, P., & Trotman, K. The effects of feedback type on auditor judgement performance for configural and non-configural tasks. *Accounting, Organizations and Society*. Oxford: Aug 2005. Vol. 30, Iss. 6; p. 537.
- Libby, R., & Luft, J. (1993, July). Determinants of Judgement Performance in Accounting Settings: Ability, Knowledge, Motivation, and Environment. *Accounting, Organizations & Society*, 18(5), 425-450.
- Magro, A. 2005. Knowledge, adaptivity and performance in tax research. *The Accounting Review* 80(2): 703-22.
- Marchant, G., J. Robinson, U. Anderson, and M. Schadewald. 1992. Analogy and tax problem solving. *Advances in Taxation* 4.

- Marchant, G. and J. Robinson. 1999. Is knowing the tax code all it takes to be a tax expert? On the development of legal expertise. In *Tacit Knowledge in Professional Practice*. R. Sternberg and J. Horvath (eds). Mahwah, NJ: Lawrence Erlbaum Associates. 3 – 20.
- Marchant, G., J. Robinson, U. Anderson, and M. Schadewald. 1991. Analogical transfer and expertise in legal reasoning. *Organizational Behavior and Human Decision Processes* 48(2): 272-90.
- Rumelhart, D., and D. Norman. 1981. Analogical processes in learning. In *Cognitive Skills and Their Acquisition*. J. Anderson, ed. Hillsdale, NJ: Lawrence Erlbaum and Assoc.: 335-59.
- Samelson, D., & Schloemer, P. (1996, April). Tax research: Challenge and opportunity. *Ohio CPA Journal*, 55(2), 19.
- Savage, K., B. Kilpatrick, and C. Bain. 1995. Weighing conflicting authorities in assessing the realistic possibility standard. *The CPA Journal* 65(5).
- Spilker, B. 1995. The effects of time pressure and knowledge on key word selection gbehavior in tax research. *The Accounting Review* 70(1).
- Spilker, B., D. Prawitt, and R. Worsham. 1999. Tax professionals' interpretations of ambiguity in compliance and planning decision contexts. *The Journal of the American Taxation Association* 21(2): 75-89.
- Trotman, K., P. Yetton, and I. Zimmer. 1983. Individual and group judgments of internal control systems. *Journal of Accounting Research* 21(2):286-92.
- Zin, K., I. Fraser, and D. Hatherly. 2000. An experimental study of auditor analytic review judgements. *Journal of Business Finance & Accounting* 27(9&10): 821-57.

TABLE 1

DESCRIPTIVE STATISTICS FOR ASSESSED STRENGTH OF AUTHORITY
(N=30)

More experienced group:	<u>Relevance</u>			Row Totals
	<i>Irrelevant</i>	<i>Indirectly relevant</i>	<i>Directly relevant</i>	
<i>Internal Revenue Code</i>				
Mean	10.38	68.46	88.23	56.18
SD	8.423	11.990	5.532	35.54
<i>Court Case</i>				
Mean	7.00	61.54	82.77	51.02
SD	6.649	21.56	11.36	36.15
<i>Revenue Ruling</i>				
Mean	10.54	49.15	75.77	45.69
SD	6.312	13.54	20.83	31.42
<i>Private Letter Ruling</i>				
Mean	4.46	35.85	67.08	35.36
SD	5.951	8.075	9.062	26.82
<i>Column Totals</i>				
Mean	7.183	55.17	78.83	
SD	7.127	19.31	15.37	
Less experienced group:	<u>Relevance</u>			Row Totals
	<i>Irrelevant</i>	<i>Indirectly relevant</i>	<i>Directly relevant</i>	
<i>Internal Revenue Code</i>				
Mean	42.4	42.27	83.47	56.04
SD	24.46	10.77	13.44	25.87
<i>Court Case</i>				
Mean	28.07	31.87	84.53	48.16
SD	11.66	13.24	14.59	29.09
<i>Revenue Ruling</i>				
Mean	25.87	19.00	65.33	36.73
SD	29.06	7.181	27.66	30.90
<i>Private Letter Ruling</i>				
Mean	21.20	17.4	73.47	37.36
SD	28.946	6.967	28.15	34.69
<i>Column Totals</i>				
Mean	29.38	27.63	76.7	
SD	25.24	14.05	22.93	

TABLE 2

REPEATED MEASURES ANOVA FOR ASSESSED AUTHORITY STRENGTH

Source	Df	F	pr > F
Between Subjects Effect:			
Experience	1	0.89	0.35
Error	28		
Within Subjects Effects:			
Relevance	2	240.73	<.0001
Relevance X Experience	2	69.13	<.0001
Source	3	33.46	<.0001
Source X Experience	3	1.79	0.1726
Relevance X Source	6	4.92	0.0015
Relevance X Source X Experience	6	1.60	0.1851

TABLE 3

REGRESSIONS FOR MEDIATION ANALYSIS

Regression	Dependent Variable	Independent variable	Parameter estimate	Standard error	t-value	Pr>t
1	Authority Strength	Relevance	29.74	1.37	21.77	< 0.0001
2	Assessed Relevance	Relevance	2.57	0.08	34.19	<0.0001
3	Strength	Assessed relevance	11.60	0.36	32.56	<0.0001
4	Strength	Relevance Assessed relevance	-0.29 11.69	2.16 0.74	-0.14 15.86	0.89 <0.0001

FIGURE 1

SUMMARY OF HYPOTHESES

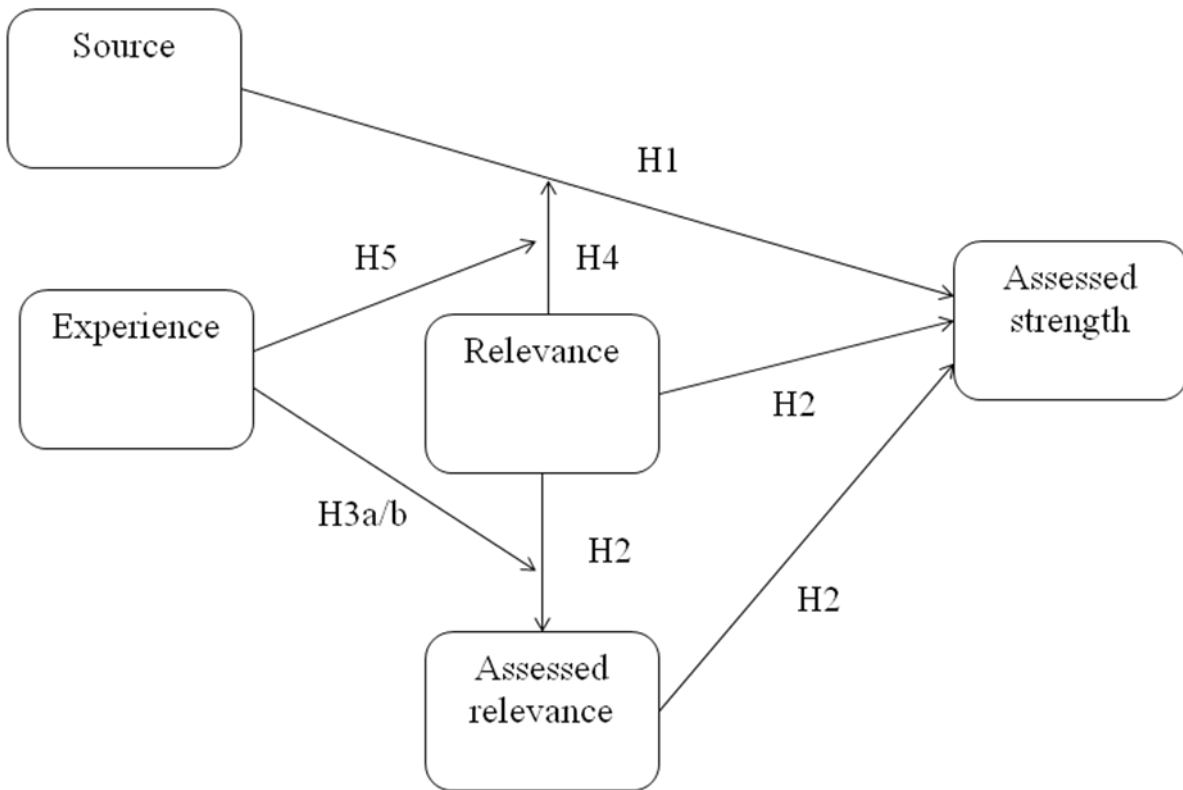


FIGURE 2

ASSESSED STRENGTHS BY SOURCE AND EXPERIENCE

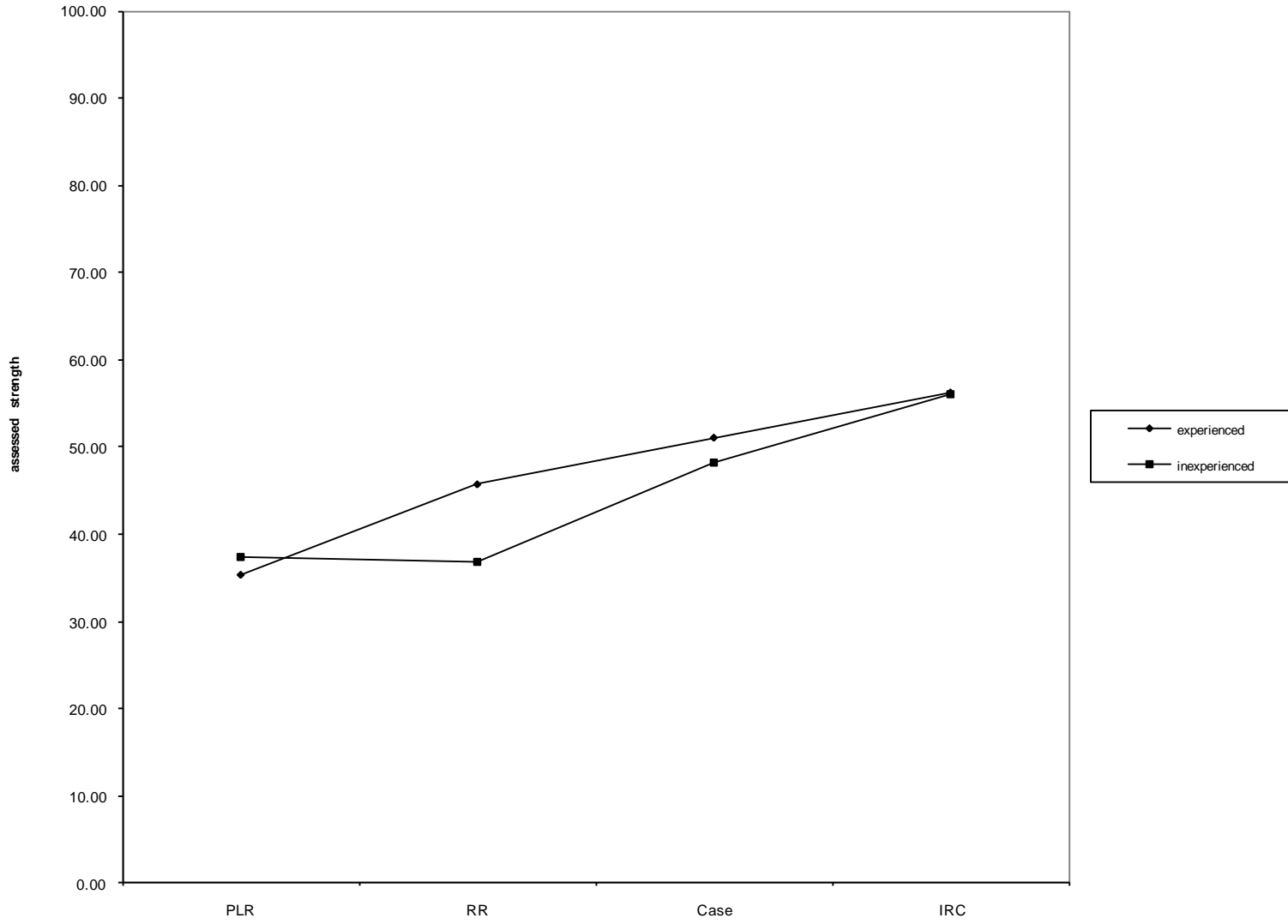


FIGURE 3

ASSESSED STRENGTHS BY RELEVANCE AND EXPERIENCE

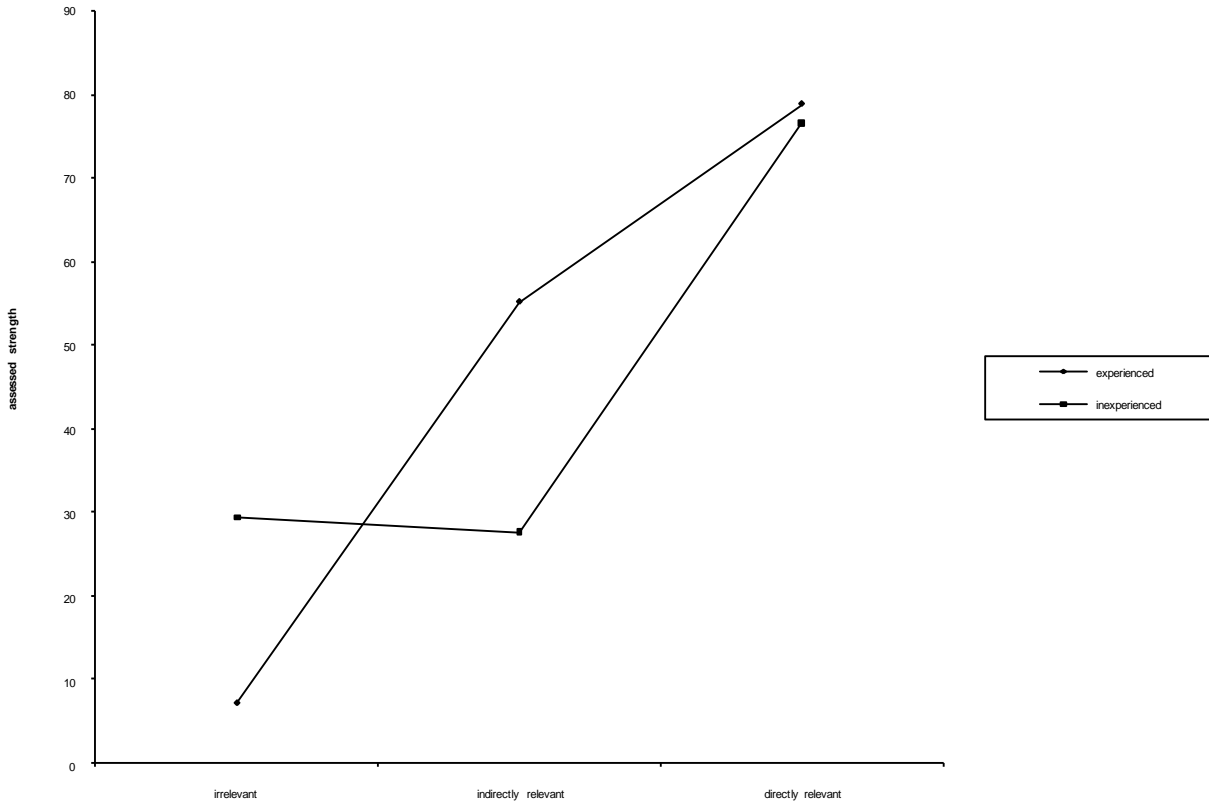


FIGURE 4

ASSESSED STRENGTHS BY SOURCE AND RELEVANCE FOR MORE EXPERIENCED PARTICIPANTS

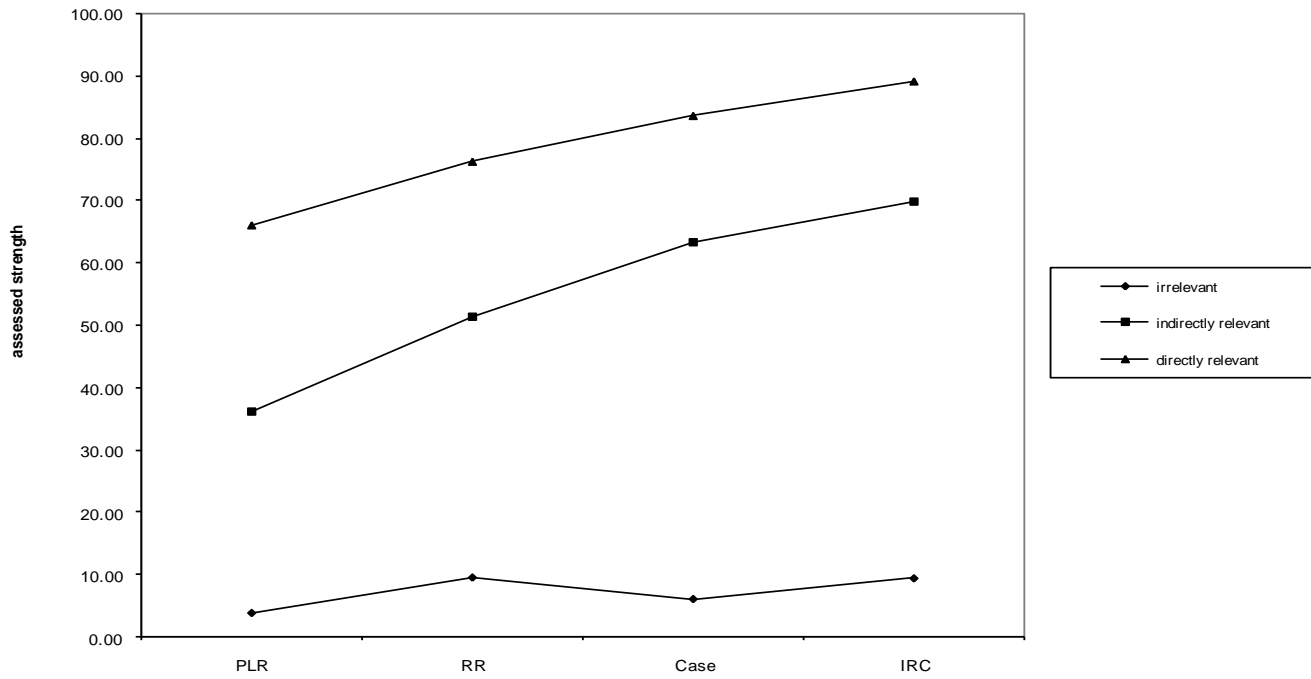


FIGURE 5

ASSESSED STRENGTHS BY SOURCE AND RELEVANCE FOR LESS EXPERIENCED PARTICIPANTS

