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Future Directions for Auditing Research

Douglas R. Carmichael
American Institute of Certified Public Accountants

In mid-1969 the AICPA's auditing research program was officially launched. For three years I have attempted to plan and initiate a program to provide the Committee on Auditing Procedure, the Institute membership and others interested in the advancement of auditing theory and practice with evidence and information useful in reaching sound decisions on auditing problems. A numbered series of monographs has been authorized and additional staff have been devoted to the effort. We are also beginning to contract for studies by outside researchers. Since we firmly believe that a researcher should have his own independent commitment to a project, we would prefer to find researchers interested in, and working on, a subject rather than commission an individual with no demonstrated interest in the area. The main purposes of this paper are to identify major research problems, or topics, which will be significant in the future; indicate the factors which should be considered in approaching these topics to specify the problem and select a research method; and reflect upon the relationships which should be achieved among research, theory, and practice. An underlying purpose of the paper is to interest qualified individuals in conducting research for the AICPA's auditing research program.

The Relation of Practice, Theory, and Research in Auditing

Research is the meeting ground of theory and practice for any applied field of knowledge. In its most general form, the research process consists of the identification and measurement of variables that are relevant to a given problem or phenomenon and determination of the nature and strength of the interrelationships among these variables. The research process cannot ignore either theory or practice.

Auditing Theory and Practice. The link between theory and practice, however, exists apart from their intersection in the realm of research. In a treatise on accounting theory, A. C. Littleton offered the following observation on this interrelationship:

Practice is fact and action; theory consists of explanation and reasons. Theory states the reason why accounting action is what it is, why it is not otherwise, or why it might well be otherwise.2

While the need for and desirability of a theory of accounting have been well accepted for a respectable length of time, the subject of auditing, until recently, has remained for many a completely practical field of knowledge. From
the "theory as explanation" viewpoint, there has been a steady development of auditing theory on a piecemeal basis. Examples of this piecemeal development include the recognition of auditing standards and their differentiation from procedures, and explication of the nature and classification of evidential matter.

However, a theory is something more than discrete bits of explanation; theory is comprehensive explanation. A theory of auditing should be an organized and systematized body of knowledge of the field of auditing, which identifies the variables of auditing practice and explains their importance, interrelationships, and implications.

At the close of their treatise on auditing theory, Mautz and Sharaf made the following observation on the interrelationship of theory and practice.

In the past, auditing has been conceived only as a practical subject with little need for or possibility of any underlying theory. Thus attention has been given to its practical applications to the almost complete exclusion of theoretical considerations. We hope we have indicated the close connection between the theory and practice of auditing, for we are convinced that the only sure solution to practical problems is through the development and use of theory.

Thus Mautz and Sharaf propose a relationship of interdependence for auditing theory and practice. Adequate consideration cannot be given to the practical applications of auditing without regard to the supporting theory. On the other hand, auditing theory developed to the exclusion of practical considerations cannot fulfill its primary justification for existence.

Mautz and Sharaf characterize the field of auditing knowledge as

... a rigorous field of study able to make a substantial contribution to our economic life and one requiring considerable attention not only to the development of a systematic and satisfactory theory but to the application of such a theory to its practical problems.

Since auditing is an applied field, its ultimate contribution must be made at the practice level. Thus, the ultimate test of auditing theory is its application to the practical problems of auditing.

**Auditing Research.** The juncture of theory and practice becomes most apparent and important in auditing research. In broad outline, research relies upon practice to identify problems or phenomena for study and it relies upon theory to guide the complex task of organizing the facts and actions of practice into a systematic pattern. Without a scheme of organization, the real significance of the collected observations of practice might never surpass the level of description. Without the direction of practice to important problems the significance of theory might not escape the level of trivia. Thus, research brings theory into contact with practice for the purpose of expanding knowledge and, in the process, research both explains practice and heightens the impact of theory. These, then, are the general relationships of practice, theory, and research.

**Research in Auditing**

The above relationships may be highlighted in more detail by a more intensive examination of research. The research process in its ideal form has been described as follows:
First, the scientist notes some phenomenon of interest (Y); in the case of social science, Y is some aspect of human behavior. Then he notes variation in the phenomenon: sometimes Y is present, sometimes not; or sometimes Y exists at a high intensity while it has lower intensity at other times. The scientist then begins a search for concomitants (X's) of the phenomenon Y; that is, he tries to discover conditions (X's) under which Y is or is not present, or conditions (X's) which vary as Y varies. When the scientist has identified an X condition that varies with Y, he then needs to establish whether X causes Y, Y causes X, or X and Y both result from some other phenomenon.

While the general procedure can be stated in a fairly simple form, the research process by which the procedure is carried out is often complicated, requiring elaborate procedures for measuring phenomena (Y's) and associated conditions (X's) and for taking into account the effects of other conditions (Z's).

Although actual research seldom follows this exact chronological sequence, that is the logical sequence of research procedure.

For the moment let us pass the process by which a particular phenomenon of interest is selected for study, and consider the question of research method—measurement of variables relevant to a phenomenon and determination of their interrelationships. A convenient scheme for classifying research methods distinguishes the methods on the basis of the type of setting within which data may be collected. The following classification scheme is based upon the degree of abstractness of the data collection setting.

I. Natural Setting—Data are obtained from real, existing situations of the type to which the results of the study are intended to apply.
   A. Surveys—Typically a random sample of a defined population to determine the distribution of a particular characteristic—usually attitudes, opinions, motivations, or expectations of people.
   B. Field Studies—Study of a situation which includes the phenomenon of interest to observe and records the phenomenon and its surrounding conditions in detail. This method is well suited for exploratory research to determine major variables. In contrast, the survey is a broader study of selected variables.
   C. Field Experiments—A natural setting with some control exercised over selected major variables.

II. Abstract Setting—Data are obtained from a setting constructed by the researcher.
   A. Experimental Simulation—A created situation which is a relatively faithful representation of the natural setting to study the activities of the participants. Such studies vary greatly in terms of the degree of fidelity to reality.
   B. Laboratory Experiments—A setting which abstracts variables from the real situation, represents them in some symbolic form, and studies the operation in that form.
   C. Computer Simulation—A closed model (mathematical) of the situation studied; all variables are built into the model.

Since each of these methods has some disadvantages in terms of what it cannot do as well as some advantages in terms of what it can do, the methods
are not freely interchangeable. The particular research problem should determine the choice of method in any given instance.

Generally, research methods with a natural setting offer less opportunity for control of variables by the researcher than those with an abstract setting. Consequently, in the natural setting, measurement of variables is less precise and less certainty exists that the research results are attributable to a particular variable. On the other hand, with more abstract settings, gains in precision of measurement and control of variables are accompanied by a loss of realism. Since the settings are abstracted and artificial representations of the real-life conditions under which the phenomena actually occur, more doubt surrounds the applicability of the research results to real-life situations.

More important than considerations of realism versus precision, is the extent of prior knowledge about the problem implied by the choice of research setting. To use the more abstract settings, the researcher must either know or assume that he knows a good deal more about the phenomenon of interest than with natural settings. In the abstract setting, the researcher creates the situation and must know what conditions need to be controlled. As the research setting becomes more abstract, the research results become more and more a function of the structure imposed by the researcher.

Although the natural settings impose less structure on the situation, this does not mean that no structure at all is imposed. The choice of research setting highlights an important relationship between theory and research. When abstract settings are used, the researcher must incorporate theory in the situation before the data are collected. In contrast, when using natural settings the researcher collects the data and then incorporates theory as he interprets the data.

Examples of Auditing Research

Some examples of existing auditing research should make the categories distinguished in this classification of methods a little more meaningful. This review of extant research, for convenience, begins with the more abstract settings. To my knowledge, no computer simulations involving auditing problems have been attempted; the most abstract setting used has been the laboratory experiment.

Behavioral Impact of Audits. Churchill, with the assistance of several others, demonstrated that the performance of the audit function influences the people whose activities are audited. Using laboratory experiments they have shown that both the anticipation of an audit and the occurrence of an audit cause people to modify their behavior. According to these experiments audits evidently exert a positive influence on conformance with prescribed control procedures normally expected.

To conduct the experiments Churchill abstracted the key variables in an audit and represented them symbolically in the laboratory. The subjects were given a simple problem solving task—locating a polluting water station in a water system represented by colored lights in a wired key-board—and a prescribed method for solving of the problem. Some groups were reviewed to see if they complied with the prescribed solution approach and some groups were told they would be reviewed in advance of their first attempt at solving the problem. By ignoring the prescribed method and innovating the subjects could solve the problem more efficiently. Thus, the key elements of an audit were
present: (1) actions of the participants, (2) prescribed criteria for those actions, and (3) a comparison of the actions and the criteria. Note that in the laboratory experiment no attempt is made to recreate the setting of the real situation under study.

Departure from an APB Opinion. Moving up the continuum to the less abstract experimental simulation, a study by Purdy, Smith and Gray indicates that implicit assumptions commonly made concerning the effect of reports on users may not be valid. Their experimental simulation tested the visibility of the required notice of departure from an APB Opinion. In October, 1964, the Council of the AICPA issued a Special Bulletin stating, in part, that departures from an APB Opinion if they have "substantial authoritative support," may be disclosed either (1) in the auditor's report or (2) in a footnote to the financial statements, with no qualification of the auditor's opinion. This study measured the visibility of these two alternative methods of disclosure to financial statement users. Contrary to normal expectations, the researchers found that the two forms of disclosure—footnote versus auditor's report—were equally visible to financial statement users.

The research method involved several groups of businessmen familiar with financial statements—such as bankers—who were presented with a set of financial statements accompanied by footnotes and an auditor's report. Some groups received statements disclosing the departure in a footnote while others received statements disclosing the departure in the audit report. These subjects were then asked questions about the statements.

In contrast to the laboratory experiment, the experimental simulation attempted to achieve some degree of fidelity to reality. Although the participants realized that they were involved in some sort of research study, there was an attempt to approximate the actual analysis of financial statements.

Confirmation of Receivables. Several field experiments have been conducted of the audit procedure of mail confirmation. In all the studies confirmation requests were sent to actual individuals or businesses. Thus, the setting was natural and the control exercised by researchers involved only major variables—the form of the confirmation request and the dollar amount of the account balance identified in the request (two studies) or a surrogate for the balance.

Auditee Attitudes. Churchill followed his laboratory studies of the audit process with a field study. Field interviews of people in organizations who had experienced audits (auditees) indicated that they do not perceive the audit as influencing their behavior, and view it primarily as a procedural check and somewhat of a policing function. These results are in direct contrast to the laboratory findings that audits did influence behavior.

While the conflicting results of these two studies need not concern us here, their temporal order is of interest. The research began at the abstract setting stage with laboratory experiments. The question I wish to raise is whether auditing researchers should first conduct more extensive studies using a natural setting. In the social sciences, one researcher suggested this ordered progression in the use of research methods.

If we are starting research on a relatively unexplored phenomenon, it would seem best to start far over at the field study end of the continuum. As we learn more about the problem, we can then work with
methods further along the continuum, with which we can gain more precise information. Then having explored the problem with precision and in depth, and perhaps having formulated and thoroughly manipulated a formal model, we can return toward the field study end of the street to find out how closely our presentations fit the phenomena of the real world.\textsuperscript{11}

This suggested order, at least, proved beneficial in a study of criteria used for the different types of auditor’s reports.\textsuperscript{12}

\textbf{The AICPA’s ARM No. 1.} The study of the fourth standard of reporting described in Auditing Research Monograph No. 1 used a natural setting—the field study. The choice of research setting was more or less dictated by the extent of prior knowledge of the reporting decision process. With so little prior knowledge, an explanatory study was needed to identify the important variables. The purpose of the study was to determine the meaning of “sufficiently material,” the single reporting criterion offered in Chapter 10 of SAP No. 33 for distinguishing between qualified opinions and adverse opinions and disclaimers of opinion.

It is interesting to consider how the choice of another method might have influenced the research results. If an abstract setting, such as an experimental simulation or a laboratory experiment, had been chosen, certain assumptions would have been necessary in the design of the study. If “sufficiently material” had been equated with relative magnitude, that variable would have been manipulated by varying the dollar impact of the exception. Research results would have established relative magnitude cut-off points for distinguishing between “material” and “sufficiently material” based on reporting decisions made by the subjects. Note the extent to which the research results would have been influenced by the structure imposed on the setting. On the other hand, research results obtained by a case by case study of audit reports indicate that certain qualitative variables seem to be more important than, or at least as important as, the quantitative variable.

\textbf{Surveys.} Recently, there has been a virtual explosion of surveys dealing with auditing topics. In fact they are too numerous to identify specifically, and singling any one study out for attention is not essential since most accountants are by now quite familiar with this type of research. However, far too many of the current surveys deal with insignificant problems and, in my view, the survey method of research is being abused today. This observation naturally leads to the critical question: What are the significant problems which should attract the attention of auditing researchers?

\textbf{Recommendations for Future Research}

Developments in auditing research, theory, and practice are by nature evolutionary. For example, the research reported in ARM No. 1 should serve as a foundation, or at least provide a background, for future study of the decision-making process of auditors in reporting. ARM No. 1 identifies the central reporting concepts and describes the role of these concepts in reporting decisions. With limited prior knowledge about the subject, the research method sacrificed some precision and several questions remain to be answered. Care was taken to obtain the data from real, existing situations of the type to which the results
were intended to apply. This constraint need not be applied so stringently in future studies, and precision of measurement may be increased by using more abstract methods—with one or two important reporting concepts isolated for study. This approach makes possible exploration of phenomena which do not occur frequently in practice, such as situations leading to adverse opinions. However, the reporting decision process is certainly not the only important research topic. Many other subjects are important, some of which are outlined below.

A. Expansion of the attest function
   1. Historical financial summaries: what are the minimum requirements for fair presentation?
   2. Interim financial statements: what evidential matter is necessary to support an opinion, and can the evidence-gathering process be structured to implement the continuous auditing concept?
   3. Forecasts and projected financial statements: what degree of responsibility for assumptions should the CPA assume in light of the nature of evidence available and the comprehension capabilities of the report reader?
   4. Operational auditing: what type of audit report is appropriate and what form of evidential matter is adequate to support the report when propriety criteria are not well formulated?

B. Refinement of auditing methods
   1. Use of other experts: in what circumstances should evidential matter include the work of other experts, such as geologists, actuaries, lawyers, or engineers; should any reference be made to these experts in the audit report?
   2. Auditing fair value: what forms of evidential matter are necessary to support an opinion on financial information based upon fair value rather than historical cost?

C. Professional responsibilities
   1. Objectivity and integrity: what alternative arrangements for selecting, changing, and compensating auditors would be feasible?
   2. Communication responsibility: to whom—both within the audited entity and outside the entity—and in what manner should the auditor communicate knowledge which may fall outside the audit report on financial statements, such as illegal acts, internal control weaknesses, and improper client-prepared financial information?

These are the auditing subjects which I would regard as most significant for future study. Each topic is followed by the major question to be answered, which would have to be reduced to a number of relevant researchable questions. This distinction is very important—in fact, critical. Each problem must be specified in terms of more specific researchable questions so that evidence and information may be gathered that bears directly on the problem. Mautz and Gray expressed the point in this way:

The specific issue must be stated in such a way that it meets the needs for which the research is proposed and indicates the kind of evidence relevant to the research subject. The research methodology must be such that it will provide convincing evidence and valid reasoning from that evidence.18

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The Mautz and Gray article is such a well-reasoned blueprint for effective research that expanding greatly upon what they have said so well is not necessary. In the auditing research program, we have endeavored to follow a similar approach from the very beginning of the formal program.

Development of ARM No. 1

Problem specification is such an important aspect of research that I would like to explore, as an illustration, some of the factors considered in the preparation of ARM No. 1. Many, if not most, discussions of research method focus on the steps in the process after the phenomenon of interest has been selected for study and the problem specified in some detail. However, problem selection and specification are critical steps in the research process. It is at this point that research should draw significantly upon practice. The difficult problems in practice, at the profession level, should identify what phenomena require study and explication. Determination of the important questions to be answered—specification of the problem—should also rely heavily on practice. An exploratory review of practice to determine the major questions to be answered should be undertaken in every study no matter what research setting is chosen to collect data.

In the study of the fourth reporting standard reported in ARM No. 1, an initial study of practice disclosed that the primary problem was lack of criteria for the distinction between a “subject to” qualification and a disclaimer of opinion. Consequently, uncertainty exceptions received the bulk of attention in the study. Further exploration disclosed that one particular type of uncertainty exception—the going-concern problem—was of major importance and, therefore, that subject was given more extensive treatment than other types of uncertainties.

For a number of reasons, research directed to the influence of audit reports in the decision process of financial statement users did not seem appropriate for an initial study. Although future research should definitely consider this dimension of the reporting process, careful attention should be given to those factors that eliminated that approach as an initial choice.

To study the decision process of financial statement users and retain control over the relevant variables, an experimental simulation or a laboratory experiment would seem to be the most logical choice for a data collection setting. The problems involved in this research approach can be conveniently explored by considering one possible experiment. If we want to test the users’ reaction to different types of audit reports when a material uncertainty is present, we might prepare a set of financial statements for a company that has a large amount of research and development cost of doubtful recoverability with extensive footnote disclosure of the problem. Different groups would be presented with the financial statements and accompanying auditor’s report and control would be exercised over the type of report. One group would receive statements with a qualified opinion, another group would receive the same statements with a disclaimer of opinion, and the statements received by a third group would be accompanied by an unqualified opinion. Other sets of financial statements would be used to vary the relative magnitude of the amount involved. In this manner, the impact of the type of audit report on users could be measured. However, while establishing the data stimuli is not too difficult, the method of measuring response is more troublesome.
An easy approach would be to allow the subjects to read through the information and then, without allowing reference to the statements, have them answer a series of questions about the statements. In this fashion, it would be possible to determine whether variations in the audit report created a greater awareness of the uncertainty problem. However, this approach does not get at the critical question of whether the audit report has an impact on the decision process of the user. Would variations in the audit report cause any change in the user’s decision? Would the different decisions be better decisions?

Research on the impact of the audit report on the decision process adds an extremely complex element to an already difficult research problem. Research of this sort would require some knowledge of the financial statement user’s forecasting model (conversion of historical data into estimates of the future) and his decision model (interaction of the estimates in reaching a decision). Research on the decision process typically assumes that all data presented to the subjects is of equal reliability. The subject is given no reason to doubt the veracity of the data. Introducing degrees of qualification concerning the reliability of the data considerably complicates the research problem.

Usually in research of this type, to achieve adequate controls over the experimental situation, the phenomenon of interest must be simplified to such an extent that only a portion of the phenomenon can be captured and the research results are of doubtful applicability to the real world situation abstracted in the experiment. Consequently, the potential results of this type of research did not hold enough promise to serve as a basis for major policy decisions. In addition, with so little information available on the decision process of auditors, establishing the criteria actually used by auditors seemed to be a more logical starting point. Future research, however, should begin to delve into this complex aspect of the reporting process.

Those of us involved in the auditing research effort at the AICPA hope that the above list will serve as an early identification of significant research topics and stimulate the interest of academic researchers capable of performing adequate research on the issues.

Research Environment

Those performing research, however, should recognize that a distinction exists between academic and, for want of a better word, institutional research—meaning research conducted for a professional organization. Naturally, we expect the two to be different and some of the differences are legitimate, but others are of doubtful merit and might well be eliminated.

Time-Span. Generally, academic research may be conducted over a longer time-span. Time constraints are usually personal and imposed by the desire or interest of the researcher. An academic researcher may envision a series of related studies conducted over a long period of time with each new study adding additional refinements to the previous effort. Institutional research must usually go directly from research results to implementing guidelines for practice. The study is usually related to the development of a professional pronouncement or a firm position and pressing deadlines may be attached to these publications.

Real-World Referents. Academic research frequently opts for the simplifica-
tion and control of highly abstract research settings. Experiments and simulations allow precise measurement of variables, which is attractive even though there may be some doubt about the applicability of the results to the “real world.” On the other hand, institutional research must often accept the loss of rigor and control to gain greater confidence that the research results are applicable to practice.

**Audience.** Academic research is in many cases unabashedly aimed at other academicians, while institutional research must satisfy policy makers and practitioners as well as other researchers. Since these groups undoubtedly have different norms and values, the reaction to institutional research results is likely to be mixed.

**Subject Choice.** Institutional research almost always begins with a problem to be solved. The research method must be fit to the problem and there is little opportunity for restricting and tailoring the problem so that it may be answered by the available evidence. If the problem is defined and narrowed too much, the institutional researcher will fall far short of his task. In contrast, academic researchers in many cases seem to choose a research method they would like to employ and then search for a problem that might be solved by that method.

**Bureaucratic Infringement.** Institutional research seems to be obviously plagued by possible conflicts between bureaucratic and professional norms. However, the academic researcher has a similar problem. In fact, his plight may be greater because the problem is much harder to recognize. The university is a complex organization and survival and advancement in the academic community at times requires compliance with norms that may be in conflict with the ideals of a scholar. Blind adherence to an in vogue research method may take precedence over generation of fresh insight on difficult problems. The nonparametric test of significance may assume more importance than the actual significance—meaning relevance and importance—of the research results to the resolution of any real problem. As a consequence, too often academic research results in a glorification of technicians over discoverers, quantification for its own sake, and fitting problems to research techniques rather than the reverse.

**Concluding Remarks**

Auditing theory is important, but theory developed in isolation from the problems of practice at the profession level has little significance and risks being trivial. Note that there is a substantial difference between those problems which face the auditing profession collectively and those problems raised in each individual audit.

To be worthwhile in the effort of solving significant problems, auditing research must be empirical. Nevertheless, deductive reasoning and attention to theory may never be ignored, and these elements should play an instrumental part in any auditing research. A clear specification of the problem, which is primarily a process of logic, may be the most important step in the research process. However, a convincing solution to an important problem is not likely without empirical evidence on the issues.

There are many forms of empirical research. Too often empirical research in accounting has meant research methods employing an abstract data collection setting, with the possible exception of the ubiquitous “survey.” At this stage in the development of the auditing field of knowledge, there is probably a greater
need for field studies and field experiments, or at least a combination of these methods with the more abstract methods in an ordered program of research.

In closing, I would not discourage any auditing research, but I would encourage research directed to the problems identified in this paper; research that gives full recognition to the role of practice, as well as theory, in the research process. There is no legitimate distinction between theoretical and applied research in auditing since neither theory nor practice can reach its full potential without the other.

Footnotes

4. Ibid., p. 245.
11. McGrath, ibid., p. 555.
12. The monograph, “The Auditor’s Reporting Obligation,” will be published in Fall 1972 as the first in a numbered series.