

## A MIXED-METHOD APPROACH TO EVALUATING NEW TAX PAYMENT PROCEDURES

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### Abstract

This paper describes a mixed-method evaluation of newly proposed tax payment procedures. Quantitative and qualitative methods were used in this evaluation. Mixing methods provided a comprehensive assessment of factors related to taxpayers' understanding and utilization of the new payment procedures.

### Introduction

This paper discusses the increased utility from combining quantitative and qualitative methods, or mixed-method research. Mixed-method research often produces results that are more comprehensive than those results provided by using either mode of research alone. However, a better understanding of mixed-method research is needed (Greene, Caracelli, & Graham, 1989). One path towards greater understanding is a greater appreciation of the varied forms that mixed-method research can take.

Research methods are the formal procedures required to obtain knowledge regarding a social phenomenon (Smith, 1994). Hedrick (1994) differentiates quantitative and qualitative methods in terms of the resulting data. Quantitative methods (e.g., surveys) use systematic approaches designed to gather specific pieces of information, whereas qualitative methods (e.g., focus groups) use techniques aimed at expanding the existing knowledge and information base.

Mixing quantitative and qualitative methods has a controversial history. To loosely characterize: Pro-quantitative and pro-qualitative researchers often wage a partisan war, with a growing contingent of mixed-method advocates caught in the crossfire (Greene, et al., 1989; Jick, 1979; Mathison, 1988). Mixed-method supporters argue for the most effectual usage of quantitative and qualitative methods (Creswell, 1994).

Indeed, many examples of mixed-method research exist. For example, content analysis, whereby qualitative data are quantified via a coding scheme, represents a mixed-method research approach (Hedrick, 1994). Similarly, using qualitative methods

to pretest survey instruments is a mixed-method approach to reducing survey measurement error. Given such practical examples, the debate over mixed-methods seems easily reconcilable.

However, mixed-method researchers lack sound guidelines and criteria for conducting and evaluating mixed-method research (Greene et al., 1989; Hedrick, 1994). Likewise, there is a limited conceptualization of the role and types of mixed-method research. Hence, debate on mixed-method research continues.

Greene et al. (1989) defined five modes of mixed-method research: triangulation, complementarity, development, initiation, and expansion. *Triangulation* seeks convergence on findings from different methods. *Complementarity* uses results from one method in clarifying results from another method. *Development* uses results from one method to inform or develop results from another method. *Initiation* seeks contradictory findings between methods in an effort to increase discovery and perspective. Finally, *expansion* utilizes different methods for addressing different research objectives. These approaches provide an avenue for understanding mixed method practices, as well as describe the many roles for mixed-method research (Greene et al., 1989).

### Study Overview

The utility and roles of mixed-method research are discussed in the context of a evaluation of methods for processing tax payments. Initially, a field test was conducted in which a revised 1040 tax package was sent to a random sample of taxpayers. This tax package contained two envelopes, one large and one small, along with a payment voucher. With a payment due, taxpayers were instructed to mail their voucher and check together in the smaller envelope, and their tax forms separately in the larger envelope. Those taxpayers not having a payment due were instructed to mail their tax return in the larger envelope. Several variants of this initial procedure were evaluated over time.

What follows is a discussion of the methodology used to evaluate these tax payment procedures. The discussion highlights how the findings from different methods were integrated in an

effort to fully understand how taxpayers regard and utilize the new tax payment procedures. Furthermore, the findings fit the Greene et al. (1989) approaches to mixed-method research. Thus, this study demonstrates the expanded role of mixed-method research.

### Study Objectives

This evaluation did not begin as a mixed-method study, but was initiated with the survey component only. The survey sought to answer three primary questions regarding the new payment procedure as contained in the revised 1992 tax package:

1. What are the rates of correct usage with the new payment procedure, as well as correlates of usage?
2. Is the new procedure burdensome or difficult to understand?
3. What are the attitudes of taxpayers toward the new payment procedure?

As the analysis of survey data unfolded, it became necessary to adopt other methodologies to address gaps in understanding due to survey limitations. Qualitative methods served this purpose. Hence, the survey served primarily to evaluate the payment procedure in a realistic field setting. Qualitative methods helped clarify reasons why people would/could not use the tax payment procedures correctly. The qualitative investigations were also useful in eliciting feedback and suggestions for improving the payment procedure.

### Methods

Briefly described below are the methodologies used in this investigation.

Survey. A standardized telephone survey was administered to a sample of taxpayers who had received the 1992 tax package containing the new mailing procedures. A comparable mail version of the survey was also developed for taxpayers not accessible by phone. Although it contains fewer items, the mail version substantively paralleled the phone version.

Think-Aloud Interviews. Think-aloud interviews occurred across five geographical locations (Rockville,

MD; Baltimore, MD; Phoenix, AZ; Los Angeles, CA; and St. Louis, MO).

The think-aloud interviews involved having taxpayers complete a mock tax return containing the new tax payment procedure. Participants were instructed to "think aloud" as they filled out the tax package to examine their cognitive processing of pertinent information pertaining to the payment procedures. Participants were debriefed on issues related to understanding of and reaction to the new payment procedures.

Focus Groups. Focus groups were conducted in the same geographical locations as the think-aloud interviews, with both taxpayers and tax preparers. They assessed general reactions from taxpayers and tax preparers who did not actually use the tax form. At the beginning of each focus group, participants received samples of tax packages containing the new payment procedures. The moderator reviewed each package, allowing participants to familiarize themselves with these procedures. Participants were then asked by the moderator to describe their reactions to the tax packages and provide recommendations on how to improve the payment procedures.

Interviews with State Officials. Telephone interviews were conducted with tax personnel from the states that had implemented similar payment procedures using vouchers (Pennsylvania, South Carolina, and Virginia). Each provided information regarding the usage, implementation, and problem areas associated with their respective payment procedures.

Expert Analysis. Experts in forms design evaluated the tax packages. Their primary purpose was to evaluate the payment voucher and related instructions in the 1040 tax package, as well as references to it in supplemental publications, in order to identify problems that might cause confusion and improper usage. Recommendations and solutions for improving the payment procedures were provided.

### Results

Survey. At the onset of data analysis, two major issues arose with the survey. First, not all respondents were considered capable of providing valid feedback. Taxpayers who did not receive the package, did not file taxes prior to the survey, or did not owe money were incapable of answering questions regarding the payment procedure and, thus, were not considered. Attrition due to these reasons eliminated 62.4 percent of the population from consideration. Second, the

remaining respondents were further reduced to include only those for whom payment procedure usage information was available. Only 32 percent of those remaining at this point met this criteria. Overall, attrition was mostly due to respondents who could not remember if they had received the revised tax package (only 16.8 percent of all respondents could remember).

Based on the remaining respondents, correct versus incorrect usage of the payment procedure was determined by using information available from two sources: taxpayer information provided by the IRS and survey responses. An estimated 11,048 taxpayers had usage information. Therefore, of the 90,864 taxpayers that were represented in the sample, approximately 12 percent received the tax package, filed 1992 taxes, owed money, and had complete usage information. Of this subset of respondents, 46.9 percent of the taxpayers correctly utilized the new payment procedure.

While each taxpayer was mailed the revised tax package, factors associated with how the return was filed affected usage of the payment procedure. Characteristics found to correlate with correct or incorrect usage of the payment procedure include when taxes were filed, if a tax preparer was used, and whether the tax form was kept and used when filing taxes.

First, 50 percent of those using the payment procedure correctly had filed during the first four months of the year compared to 30.6 percent not using the procedure correctly and filing in the same period. Second, significantly more individuals not using the payment procedure correctly had used a tax preparer (76.1 percent) compared to those using the payment procedure correctly but doing their own taxes (43.8 percent). Third, among those doing their own taxes, 66.9 percent of the correct users of the payment procedure also reported using the package received in the mail. This compares to 41.2 percent of those incorrect users who used the tax package received in the mail. This third finding indicates respondent recall problems. Close to 100 percent of correct users of the payment procedure should report using the package they received (the tax package was not otherwise available). The fact that the result is substantially lower (66.9 percent) reflects problems respondents had in remembering exactly what they had done with the revised tax package.

All survey respondents were queried on usability issues pertaining to the instructions and location of payment materials as well. A total of 80.9 percent of respondents either strongly agreed or agreed that the payment instructions were clear. Likewise, 75.9 percent of respondents strongly agreed or agreed

that locating the voucher was easy. Finally, 77.4 percent strongly agreed or agreed they understood how to use the two envelopes.

The survey results, while providing insight into factors related to usage of the payment procedure, were limited given the issue with recall and the dramatic reduction in the definition of the sample. Still, results did point towards major correlates of usage, such as the use of a tax preparer. However, the generally favorable responses towards the instructions and payment materials contradicted the low rate at which the procedure was used correctly. This suggests error in the survey questions and/or restriction of range problems and prompted the use of think-aloud interviews to gather a better understanding of taxpayer comprehension as they filled out the tax package.

Think-Aloud Interviews: In the think-alouds, only 18 out of 60 (30.0 percent) participants correctly used the payment procedures<sup>1</sup>. This low correct usage rate occurred despite the opinion among facilitators that the majority of participants tested were meticulous in all facets of the simulated exercise. Several factors primarily contributed to the low correct usage rate: unclear/unnoticeable instructions and poor placement of materials.

In terms of instructions, participants did not read the "What's New" section (on cover) of the tax package where the payment procedure is first introduced. Similarly, different parts of the tax package presented contradictory instructions. This latter circumstance prompted many participants to simply revert to their customary style of payment (i.e., using the single large envelope for mailing everything). Post-task debriefing about the instructions elicited remarks such as:

"I assume the information is the same as the past year."

"I don't read the cover because it doesn't usually tell anything new."

These findings seemingly contradict the survey responses regarding the instructions. In the survey, most respondents indicated they had little difficulty in understanding the instructions; however, these questions were only asked of survey respondents indicating awareness of the new payment procedure. Most think-aloud participants simply overlooked the

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<sup>1</sup> This rate improved with later, refined versions of the payment procedure.

instructions. While many taxpayers adequately understand the “old” payment instructions, they remained unaware of new the payment procedures.

The second major finding from the think-aloud interviews was that users had difficulty in locating the materials needed for paying taxes as specified (e.g., envelopes and voucher). Some participants read the word voucher aloud, touched the voucher itself, and looked over instructions pertaining to it, but still did not use it. Of those finding the voucher, most encountered it from the instructions on the 1040 form itself that referenced the use of the voucher without much detail.

Similarly, the placement of the two envelopes confused many participants. When removing envelopes, most people found one and did not look for a second. Participant remarks about the voucher and envelopes summarize these findings:

“Move the voucher to the front of the package. I never saw it.”

“I couldn’t even find the envelopes. Why aren’t the two envelopes placed side-by-side?”

The overriding message from think-aloud interviews was that the tax package failed to alert taxpayers about something new in the payment procedure. As noted, only 16.8 percent of survey respondents had recalled the new payment procedures. Without expecting something new or different, the instructions were confusing. Most taxpayers could not follow them properly and had to revert to the established method of mailing in tax payments. A significant amount of confusion stemmed from difficulty in locating the materials required in the payment procedure.

**Focus Group with Tax Preparers:** Focus groups were conducted during the same time period as think-alouds. The focus groups dealt heavily with reactions to the new payment procedures.

Several important findings occurred with the tax preparer focus groups. First, most tax preparers noted that few of their clients provide them with the tax package received from the IRS (i.e., packages with preprinted information). Second, most tax preparers regarded the payment procedure as increasing burden and costs for both themselves and taxpayers. This fact was exacerbated by a lack of understanding the purpose and reason for the new procedures. Taxpayers suggested that many people would react negatively if

not informed of the rationale behind the new procedure. Expressed comments include:

“People will see it as another burden forced onto them so that IRS’s job is easier, when it should be the other way around: a focus on what could make filing taxes easier.”

“This is not process improvement; there’s got to be a better way.”

Third, tax preparers noted that their inability to generate the vouchers with their current software would hinder their ability to implement the new payment procedures. Most tax preparers did, however, display a willingness to implement the payment procedures if the process could be computer automated.

These focus group findings explain why survey results found that use of a tax preparer significantly decreased correct usage of the payment procedures. They also highlight other concerns for implementing the new payment procedure beyond the individual taxpayers perspective. For example, tax preparers note that those using their services do not care about the details of the procedure contained in the tax package, and this is largely why they pay tax preparers for their services.

Tax preparers also raised the issue that the new procedures might be viewed as burdensome. This contradicts the impression generated from survey results. In fact, tax preparers responded similarly to think-aloud participants when asked about the instructions, placement of materials, and other structural components of the payment procedure.

**Focus Groups with Taxpayers:** Focus groups with taxpayers were conducted separately from those with tax preparers. These produced two major findings. First, most of the taxpayers thought the location of the voucher was effective. Some indicated that being on the same page as the label would aid in locating the voucher. Thus taxpayers not completing the tax package produced responses contrary to those who were in the think-aloud interviews. Second, many were confused by the term “voucher” as portrayed by the following comments:

“Some people may think a voucher is something you use to redeem things.”

“A voucher to me means you’re getting credit for something...To use it for payments is contrary to what I understand a voucher to be.”

Some think-aloud participants had also revealed that the term “voucher” was problematic. This finding helps explain why think-aloud participants appeared to read the instructions without comprehension.

Interviews with State Officials: Interviews with state officials provided three primary suggestions for increasing correct usage of the payment procedure. First, it was suggested that instructions on the new procedure should be placed in as many places as possible, including the envelope, on the 1040 signature line, the front cover, and other publications. Second, it was recommended that newspaper and television advertising be used to inform taxpayers of the new procedure. Media campaigns were found to be successful in Virginia prior to implementation. Third, both South Carolina and Pennsylvania suggested using blank envelopes to force taxpayers to consider the appropriate use of the envelopes more carefully.

Each of these suggestions related to previous suggestion gathered during the other phases of the study. For example, think-aloud participants suggested placing the instructions in more places throughout the tax package. Note, however, that survey results provided little by way of suggestions for improving the payment procedures.

Expert Analysis: Finally, results from the expert analysis provided specific steps to take in addressing problems with terminology, instructions, and material location. For example, experts noted the confusion over the term “voucher” and other vague or unclear wording of instructions. It was suggested that the instructions use the active voice, parallel language, common words, and terms reflecting the taxpayers’ point of view. The experts also found omissions of potentially useful information. For instance, on the front of the envelope taxpayers are instructed to “Apply Label from Envelope Flap”. However, the instructions failed to indicate that (in some instances) taxpayers have two labels from which to choose. Finally, the experts noted the lack of repetition of information in the instructions booklet, the 1040 form, and additional source booklets.

## Discussion

The delay between when taxpayers filed their taxes and when the survey was administered produced

substantive recall error, thereby limiting the survey results. However, incorporating qualitative methods post-hoc allowed clarification of the survey findings, as well as the opportunity to address a broader array of issues. Some examples of this were discussed above. To fully understand the implications of this mixed-method approach, consider a few examples of integrating the information provided across any two methods. These findings fit the conceptual framework for mix-method research provided by Greene et al. (1989).

Example 1: In think-aloud interviews, it was clear that many participants failed to notice a change in the mailing procedure. When a change was noticed, many participants still appeared confused over instructions regarding the payment procedure and had difficulty in locating payment materials. However, a slightly different interpretation evolved from the focus groups. Here, participants generally understood the procedures and thought the location of the materials was not problematic. Of course, they did not actually complete the tax preparation exercise and benefited from the moderator who introduced the procedure to them. Focus group participants did express confusion over the use of the word “voucher”. This finding can be viewed as an example of initiation in mixed-method research (Greene et al., 1989); seemingly contradictory findings resulted in greater understanding. Here, the practical conclusion was that taxpayers could typically follow the new payment procedures when they were made salient. As state officials from Virginia suggested, such saliency can be greatly facilitated by advanced advertisement of changes to the payment procedure.

Example 2: Analysis of survey responses revealed that use of a tax preparer was a major factor related to non-usage of the new payment procedure. However, the dynamics of this relationship, particularly how to facilitate correct usage among those using a tax preparer, were not discernible from the survey data. In focus groups with tax preparers, it was discovered that many tax preparers “ignored” this procedure because they automate the filing process and computer-generate returns and envelopes. Because a sizable percentage of the population uses tax preparers, the concerns of tax preparers in using the payment procedure correctly must be addressed. As many participants in the focus group noted, this could be sufficiently addressed by allowing computer generation of the voucher and other materials needed to comply with the payment process. This finding exemplifies development (Greene et al, 1989) in

mixed-method research; focus group findings helped identify the tax preparers as a target population for the qualitative investigations.

Example 3: Many examples of triangulation (Greene et al, 1989) occurred in this investigation as well. For example, for both the think-aloud interviews and focus groups, participants provided the same general recommendations for improving the payment procedure. Many of these recommendations were consistent with what the expert analysis provided. The expert analysis did, however, provide more specific recommendations on improving specific problems. For instance, focus group participants (taxpayers and tax preparers) suggested putting the instructions in as many locations as possible. Experts in forms design repeated this suggestion, but also provided specific recommendations for improving the language of the instructions.

### Conclusion

As this paper demonstrates, mixed-method research affords a more complete assessment and provides researchers with greater flexibility. Not only did mixing methods increase the comprehensiveness of this investigation, but adherence to any single methodology would have resulted in a significant loss of valid information and understanding.

Historically, the purpose of mixing methods is grounded in the ideal of triangulation. However, a fixation on triangulated research unduly restricts the multiple modes of mixed-method research (Jick, 1979; Mathison, 1988). For example, mixed-method research producing inconsistent findings across methods is often construed as a research methods flaw. This narrow view of mixing methods prompted Mathison (1988) to propose a broader conception where triangulation is regarded "as a technique which provides more and better evidence from which researchers can *construct meaningful propositions* about the social world (p. 15)." This advice works equally well for non-triangulated mix-method research and is less restricting in the reasons for utilizing and interpreting mixed-method research.

Quantitative and qualitative methods can be mixed in many ways. Indeed, mixed-methods have been accepted in narrow domains of research, such as the role of qualitative methods in pretesting of survey instruments. This investigation demonstrates the variety of forms mixed-method research can take. However, a greater acceptance and utilization of mixed-method research require a better understanding of the many approaches to this research method. With

this understanding, researchers stand to benefit from greater flexibility and perspective. As Sechrest, Babcock, and Smith (1993) note, "science becomes more certain in its progression if it has the benefits of a wide array of methods and information (p. 230)."

In the present study, survey data provided population estimates for the taxpayer population receiving the 1992 revised tax package. The laboratory interviews and focus groups provided expanded information on particular aspects of using the tax package. For example, the think-aloud interviews uncovered reasons why particular components of the package may have posed problems to taxpayers. Interviews with state officials and the expert analysis provided specific recommendations for improving the payment procedure and increasing understanding and correct usage of the payment procedure.

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