

MEASURING AND IMPROVING TELEPHONE INTERVIEWER PERFORMANCE AND PRODUCTIVITY

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17.1 INTRODUCTION

Trained and hard working telephone interviewers are critical to the success of telephone surveys which is why survey organizations spend significant amounts of time training new interviewers, retraining experienced interviewers, and monitoring and supervising the performance of interviewers. In this chapter we describe how the performance of telephone interviewers is measured, how the performance of telephone interviewers can be improved with appropriate training, how performance information is communicated, and what kinds of performance can be expected from telephone interviewers.

Measuring interviewer productivity is important to the management of telephone surveys for several reasons. First, interviewer wages are often the single largest expense in a telephone survey budget; therefore anything that affects interviewer productivity will also have an impact on the survey budget. Second, productivity benchmarks are essential to survey cost estimating. Developing a realistic estimate of survey costs requires making realistic assumptions about how many completed interviews, refusals, non-contacts, ineligible, and call-backs are to be expected. The consequences of incorrectly estimating interviewer productivity can be quite serious. Inaccurate estimates of interviewer productivity can produce survey budgets that are too low or too high, creating financial problems for the survey center. They can also lead to missing project

deadlines and survey goals for completed interviews. Third, interviewer productivity may be used as a basis for merit pay that is given to the most productive interviewers in an organization.

Interviewer productivity is often the basis for rewarding interviewers if they are performing well, or sending them to retraining or letting them go, if they are performing poorly.

Interviewers are typically evaluated on their performance on a survey. Those performing below average or below some standard are then sent for further training in interviewing or persuasion techniques. Interviewers who cannot perform at some minimum standard are either reassigned to other work, or their employment is terminated and they are let go. Fourth, knowledge of interviewer productivity is helpful for training and retraining of interviewers, and for communicating performance expectations that are grounded in reality. Last, information about the productivity of telephone interviewers is essential for planning and scheduling the number of interviewers needed for fielding a telephone survey.

In this chapter we first review the current state of the field in terms of interviewer performance and training, and describe the kinds of productivity measurements that are used to evaluate and improve interviewer performance. Next, we describe how interviewer training is used to communicate performance and productivity expectations to telephone interviewers, and outline a technique for rapid interviewer training to quickly bring interviewers in line with performance expectations. This is followed by a summary of the results of a survey of organizations that conduct telephone interviews and the kinds of productivity measures they collect to evaluate their interviewers and use in interviewer training and retraining. The paper concludes with some recommendations for measuring the performance of telephone interviewers, and improving training of telephone interviewers.

17.2 MEASURING INTERVIEWER PRODUCTIVITY

There is relatively little in the survey research literature about how to manage telephone interviewers for productivity, or about the kinds of performance measures that are collected on interviewer performance. However, an awareness of the importance of managing interviewer productivity is apparent in the literature. More than 25 years ago, Dillman (1978) noted the importance of interviewer productivity in describing how to plan for the number of interviewers that would be needed to field a survey, based on how quickly interviews were being completed, and how many refusals and no answers were being produced (Pp 278). Interviewer productivity tends to be mentioned, if it is at all, in discussions of the most productive times to conduct interviews. For example, Frey (1983) suggests that the most productive calling time is between 6 and 7PM (Pp 164), that interviewers should be scheduled for times when the probability of nonresponse is small and the likelihood of completion great (Pp 161), and that the most productive interviewers should be given the most work (Pp 164). Lavrakas (1987, 1993) proposed that a basic measure of interviewer productivity be the ratio of the number of properly completed interviews attained per interviewing session to the number of refusals (and partials) for each interviewer (Pp 137). He suggested that a reasonable goal for which interviewers should be trained is to achieve at least four completions for every one refusal or partial. Lavrakas (1993) also suggested incorporating productivity measures into interviewer pay rates, such that one third of their hourly rate be based on their productivity. These and similar statements suggest that survey researchers are aware that interviewer productivity varies depending on a variety of survey factors, and that productivity is important to measure for the successful implementation of a survey..

17.2.1 Interviewer Productivity

In the research literature, there has been greater emphasis on evaluating the effects of interviewers on response bias and measurement error, which, while not the focus of this chapter, also suggests a need for measuring interviewer productivity. Interviewers who are more productive will have a greater influence on the survey data collected than less productive interviewers. Groves, Fowler, Couper, Lepkowski, Singer, and Tourangeau (2004) describe how estimates of the standard errors in a survey are directly related to the average number of interviews per interviewer. This literature shows the quite substantial effects that interviewers have in influencing survey outcomes, and thus the importance of properly managing telephone interviewers. We do need to be concerned about the size of interviewer workloads.

In discussing the management of data collection (mainly for face-to-face interviews), Weinberg (1983) suggests a supervisor to staff ratio of about 1:10 and says that “the interpersonal interaction between supervisor and interviewer can affect survey production, data quality, and costs.” She also notes that the management of data collection should include monitoring both the quality and quantity of the work. Lavrakas (1987; 1993) similarly recommends a ratio of about 1:10 for supervisors to telephone interviewers. Another element of interviewer productivity for Lavrakas is the speed at which sample call records are processed, but he does not propose a standard.

For Fowler (1984; 1993) interviewer productivity is primarily the number of interviews completed. The number of completed interviews obtained by an interviewer is frequently used as the main measure of productivity, since survey goals often emphasize achieving a certain number of completed interviews. Link (in press) defines the production efficiency of telephone

interviewers as the ratio of hours worked to completed interviews obtained. Link (in press) also describes a measure of interviewer effectiveness as the ratio of the number of refusals obtained divided by the sum of refusals plus completed interviews.

We found one study in the literature (Thurkow, Bailey, & Stamper, 2000) which compared the effects of group and individual monetary incentives on the productivity of telephone interviewers. In this study, call-completions was the main measure of interviewer productivity, although the study also looked at call attempts per hour. The study found that individual incentives were more effective at increasing productivity than either group or competitive incentives.

The literature on call centers, much of which deals with direct marketing, sales, and support and not research, includes articles concerned with management of telephone staff, however, much of this literature is not relevant to telephone interviewing because so much of their focus is on selling and marketing of products and services, and deals with incoming call as well as outgoing calls. Anton (1977) and Waite (2001) describe some typical call center metrics for measuring the productivity and performance of call center staff.

Several authors indicate the importance of communicating productivity expectations with telephone interviewers. Lavrakas (1987; 1993) indicates that it is important to communicate productivity expectations to interviewers so they know how to perform adequately. Weinberg (1983) also indicates that supervisors should reinforce any expectations stated in the interviewer manual. Morganstein and Marker (1997) make a case for the importance of collecting process data and communicating it to identify and control processes that produce statistical products.

It would be difficult to develop standards of interviewer productivity that can be applied

to all telephone surveys, or even to a single survey because of differences in sample populations, interviewers, survey requirements, and which phase of a survey is being measured. However, the International Standards Organization (ISO) is developing a set of standards for market, opinion, and social research, which will help to ensure that survey research is “undertaken to an appropriate standard and in a verifiable and consistent manner (International Standards Organization, 2005).” The most recent draft of the ISO standards for survey research does not have a standard for telephone interviewing productivity, but it does have one for interviewer training, which includes a six-hour minimum for training new telephone interviewers (p.18-19).

Interviewer productivity is important for identifying staffing needs to ensure that survey projects are worked adequately and efficiently. Current computer assisted telephone interview (CATI) systems can help by providing basic performance and productivity data on telephone interviewers (Parsley Edwards, Suresh & Weeks, 1998). Most telephone survey research is now carried out with CATI systems, and the detailed performance and productivity data that CATI systems provide, make it possible for better and more efficient management of telephone interviewers.

17.2.2 Productivity Metrics

There are several different productivity measures in a telephone survey, and modern computer assisted telephone interview (CATI) systems facilitate the collection of many of these measures. Commonly used productivity measures include the following: number of call attempts made; number of completed interviews obtained; number of refusals; number of ineligible; total number of minutes worked; average length of completed interviews; quality of interviews completed; monitoring scores; attendance and tardiness.

Derivatives of these measures are sometimes more useful as measures of productivity, usually calculated on a per hour or minute basis, such as number of call attempts per hour, or minutes per completed interview. Some frequently used metrics include:

- **Call attempts per hour** which is calculated as the average number of calls made by interviewers per hour, or the total number of call attempts made during a work shift, divided by the total number of hours in the work shift. This is a baseline measure of time on the telephone, and is useful in ensuring that interviewers stay on task.
- **Hours per complete** is calculated as the average number of hours required to get a completed interview, and is determined by dividing the total number of interviewer hours worked by the total number of completed interviews obtained during a shift. This measure generally correlates positively with days in the field, since easier to reach respondents are typically disposed of early on, and the more difficult to reach respondents that require more call attempts occur later in the field period.
- **Refusals per hour** which is calculated as the average number of refusals obtained per hour, or the total number of refusals made during a work shift, divided by the total number of hours in the work shift. This measure is generally negatively correlated with days in the field. A related metric is the ratio of refusals to refusals plus completes as described by Link (in press).
- **Ineligibles per hour** which is calculated as the average number of ineligible respondents per hour, or the total number of ineligible respondents obtained during a work shift, divided by the total number of hours in the work shift. Like refusals per hour, this measure is negatively correlated with days in the field. This metric is not used very

often, but is important for surveys that screen out a high percentage of cases, because the rate of ineligibles will affect the rate of completions and refusals in a survey.

All of these data and more can generally be obtained from a CATI or CAI system used for conducting telephone surveys, and the data are generally continuously available and by interviewer as well (Berry & O'Rourke, 1988). When plotted against project timelines these metrics are useful for assessing what adjustments if any need to be made to workloads or timelines. These metrics can be used by themselves or combined with other factors to create composite indicators. Other productivity measures researchers have suggested for comparing interviewers before and after training include: the ratio of completed interviews to the number of non-immediate hang-up first refusals (CFR), and cooperation rate (contacted eligible sample units that cooperate with a survey request). More sophisticated call center telephony systems can actually calculate time "off hook" and time "on hook" and can parse the time interviewers spend dialing the telephone, connected with a respondent, and time they are not on the telephone.

17.2.3 Using and Communicating Productivity Information

Productivity information is often used in (1) forecasting hours and days required to achieve project goals; (2) forecasting staffing levels needed; and (3) communicating with interviewers about performance on a survey project. One of the most useful aspects of productivity information is its use in estimating staffing levels needed for a survey, or the number of hours/days required to reach project goals. A three-part equation relating staffing levels needed (number of interviewer hours) to productivity (hours per complete times number of completes) can be developed as follows.

$$\text{\# of Interviewer Hours} = \text{Hours per Complete} \times \text{\# of Completes}$$

The productivity measure (hours per complete) is estimated based on the result of calls over some period of time, such as the first few hours or days of a survey. Since hours per complete tends to increase while a project is in the field (shown in Figure 17.2), it is useful to calculate this information daily, put it in a spreadsheet, and re-estimate the number of interviewer hours needed.

Using this productivity information is invaluable in forecasting interviewing needs, since the forecast is based on actual trends instead of hypothetical or past estimates. The forecast can be further improved by linear regression, since as we show in Figure 17.2, productivity changes as more of a sample is worked and the composition of the remaining sample changes from unworked cases to no answers, answering machine cases, and refusal conversions. With each successive day that a telephone survey is in the field, a new regression equation can be developed to predict the remaining hours/days required to complete the survey, becoming increasingly accurate as the survey nears its end.

Parsley Edwards, et al, (1998) in a review of automated call scheduling features in computer assisted interview (CAI) systems suggest that the area most sorely in need of future work is the interaction between the autoscheduling system and interviewer staffing (Pp 306) and that the ability to predict staffing needs for interviewing shifts is a particularly useful feature which is not currently available in any CAI system. Thus, survey organizations either do this manually, haphazardly, or in a limited way. Figure 17.1 displays an excel sheet that uses daily productivity data to forecast the number of interviewer hours and the number of days required to obtain 200 completed interviews over 21 days.

Day	Intvr Hours	Number CM	CM Per Hour	Hours Per CM
1	7	4	0.57	1.75
2	3	1	0.33	3.00
3	4	5	1.25	0.80
4	25	14	0.56	1.79
5	23	25	1.10	0.91
6	15	13	0.87	1.15
7	19	14	0.76	1.32
8	16	10	0.65	1.55
9	12	11	0.90	1.11
10	18	16	0.89	1.13
11	23	13	0.57	1.77
12	18	12	0.67	1.50
13	17	6	0.35	2.83
14	14	12	0.86	1.17
TOT/AVG	213	156	0.73	1.37
Goals				
Days Remaining		7		
Completes		200		
Forecast				
CMs to do		44		
Intvr hours		60		
Hours per day		9		

Figure 17.1 Using Productivity Data to Forecast Staffing Levels

Productivity information is also useful in communicating with interviewers about performance expectations. Tracking the number of calls per hour, hours per complete, refusals per hour, and/or ineligibles per hour that interviewers achieve over the course of a survey project and then posting this information provides interviewers, supervisors, and managers with information about the productivity of surveys.

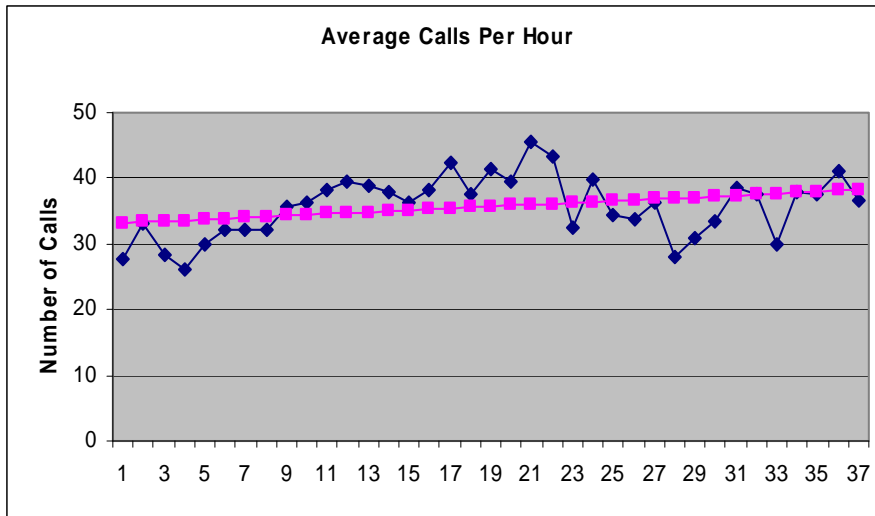
There will be individual variation on all of these measures but it is straightforward to identify control limits on these measures and determine whether some interviewers are outside the expected range of performance. However, since many of the productivity measures are

interrelated, they must be used prudently so that interviewers are never penalized for good behavior. For example, interviewers who achieve a high number of completes (or ineligibles in screening interviews), will generally see their calls per hour decrease because their time is occupied in talking with respondents, which takes more time than making call attempts.

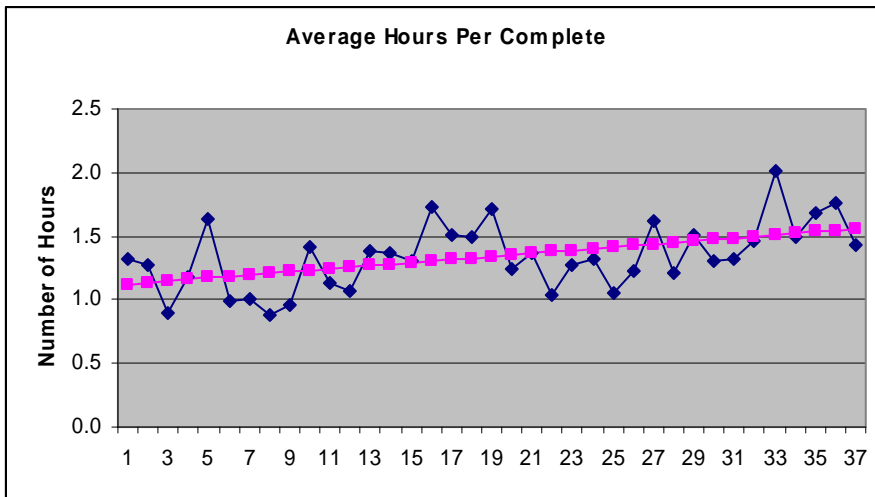
Interviewers who consistently exceed the averages for productivity measures are good candidates for becoming monitors, interviewer leads, or supervisors. Interviewers who consistently perform below average, and particularly those that are outside the control limits on any of the productivity measures should be assigned to retraining sessions. Productivity measures and the expected normal range should be presented to all telephone interviewers, especially new interviewers, so that performance expectations are clearly communicated. If interviewers are rewarded for their performance, care must be taken to ensure that this is done in a way that does not encourage inappropriate behavior, such as faking completed interviews. Good CATI managers generally view results which appear consistently too high with some suspicion, as an indication of potential interviewer fraud. This is another reason that monitoring of telephone interviewers is an essential part of the survey process (see Chapter 16).

To demonstrate how productivity metrics can be used, we have collected data from six recent telephone survey projects conducted by the authors involving both listed and RDD samples, and summarized the results in Figure 17.2. We present averaged results, rather than present individual survey results to simplify the presentation and discussion.

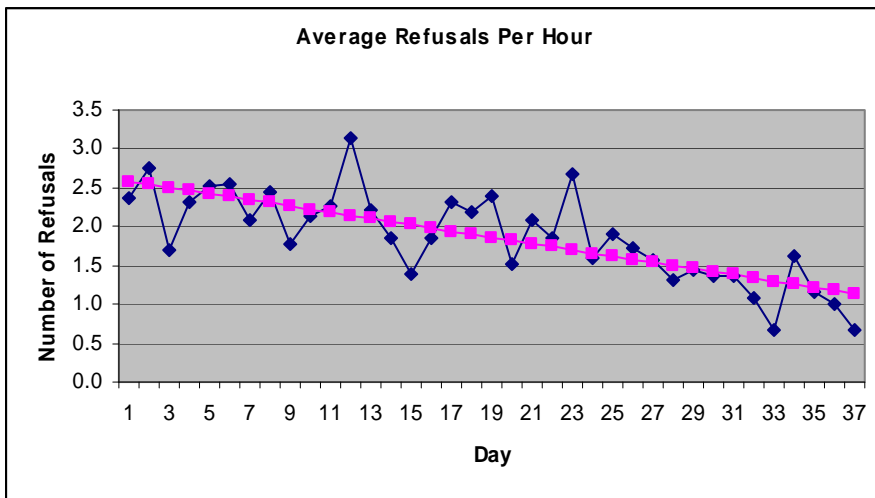
Figure 17.2 shows productivity data averaged over six telephone surveys conducted by the authors (each survey averaged 15 to 16 minutes in length). The chart at the top shows the average number of calls per hour for each of 37 days that these surveys were in the field.



Average = 36
 Std Dev = 4.7
 Regression Coefficients
 Intercept = 33
 Slope = 0.14



Average = 1.28
 Std Dev = 0.26
 Regression Coefficients
 Intercept = 1.11
 Slope = 0.01



Average = 2.2
 Std Dev = 0.58
 Regression Coefficients
 Intercept = 2.6
 Slope = -0.04

Figure 17.2 Three Productivity Metrics Over Time

The trendline shows a slight increase in call attempts with each succeeding day in the field. This slight increase is due mainly to the increase in unproductive calling (no answers, answering machines) the longer a survey stays in the field. The chart in the center, shows the average number of hours per completed interview for each of 37 days in the field. The trendline also shows an increase with each successive day of calling. This reflects the increasing difficulty of achieving completed interviews from the remaining active sample in the field. The chart at the bottom shows the average number of refusals per hour for each of the 37 days in the field. The trendline shows a slight decrease, which reflects the increasing difficulty of reaching respondents from the remaining active sample, with more no answers and answering machines reached than respondents. Comparing the three figures, interviewer productivity as measured in these three ways, is not static but changes throughout the course of a telephone survey. Some surveys may emphasize these trends more than others, but all telephone surveys probably follow a similar pattern. This makes it important to consider which phase a survey is in, when using productivity information to forecast interviewing needs, and when using this to assess interviewer performance.

17.3 HOW INTERVIEWER TRAINING AFFECTS PRODUCTIVITY

Most studies of interviewer training seem to focus on the effects of training on one aspect of interviewing, such as avoiding refusals (Shuttles, et al. 2002; 2003), or increasing the rate of completions (Groves & McGonagle, 2001). Link, Armsby, Hubal, & Guinn (2004) describe a virtual environment to teach telephone interviewers interaction skills with a goal of developing refusal avoidance skills. Productivity plays an important part in interviewer training, as increasing productivity, through more completions, fewer refusals, fewer missing items, more

call attempts, is generally the goal of training.

17.3.1 Training Protocols Designed to Improve Cooperation

Groves and McGonagle (2001) suggest that interviewer training may be under utilized as a way to influence survey participation and that most past research on interviewer trainings has primarily focused on question delivery and measurement error. In their study they show that training regimens directed at changing the behavior of interviewers, especially during survey introductions and at sample recruitment, can significantly influence sampled individuals' decisions to participate in surveys. Training regimens that taught interviewers to diagnose and provide counter statements to respondents' concerns and to maintain interaction, in authors' experiments, out performed and had lower rates of refusals than interviewers who did not receive this type of training. These authors point out that standardized interviewing that promotes set scripts and a "one size fits all" approach to survey introductions, has failed to make significant improvements in survey cooperation over the last two decades. As a result, surveyors are seeking other avenues for improving first contact rates, and are testing the requirement and "long standing practice" in many organizations for interviewers to deliver standardized scripted introductions. In our research we are specifically interested in training protocols that enhance interviewer effectiveness as measured by their productivity.

Tailoring what is said to respondents and maintaining interaction are two interviewer behaviors that are used in training protocols to address sample person participation (see Groves and Couper, 1998). Maintaining interaction is a fundamental element of tailoring, and prolonging the interaction with the respondent promotes more commitment by both interviewers and respondents. As the interview and interaction progresses, the interviewer and the respondent

are each less likely to dismiss one another. The concept of tailoring promotes interviewers evaluating reactions of respondents and seeking cues to prolong the interaction and using successful arguments that increase respondent receptivity towards the interview request. Inexperienced interviewers and interviewers with high refusal rates are often evaluated as creating soft refusals (respondents who mildly refuse and might be persuaded to participate with more effort) by having too few counter statements to use and having to resort too quickly to making the interview request. We suspect that new interviewers and those that are less productive are virtually unaware of what they need to do and how to go about making connection with respondents. On the other hand more experienced interviewers and those showing higher cooperation rates engage in more dialogue at first contact and actively communicate with respondents. The main attributes of experienced interviewers that influences survey participation is more confidence and a larger combination of behaviors proven to be effective in persuading sample persons (Groves, Cialdini, and Couper, 1992).

Mayer and O'Brien (2001) conducted tests with 24 Census Bureau interviewers allocated to 3 experimental groups to specifically evaluate the effects of their Refusal Aversion Training (RAT) on First Contact Cooperation Rates. Interviewers in the RAT received 8 hours of training. First Contact Cooperation rates were used as metrics to simplify analysis. All interviewers showed a natural increase in first contact cooperation rates with interviewing experience (two data collection periods for this study) without specialized training. The results of the experiments showed that first contact cooperation rates increased 3-7 percentage points and as much as 14 percentage points over time for interviewers who participated in Refusal Aversion Training. While this study focused on only two consecutive data collection periods it

showed that it took time for the effects of training to show and authors report that interviewers admitted that it took time to become comfortable with strategies taught in the training and to put them to use. What is not evident from any of these studies is whether training stays with interviewers over time, and whether or not they need refresher trainings to reactivate skills taught in specialized trainings. Does specialized training apply across different kinds of surveys? Shuttles et. al (2003) conducted a series of three studies that randomly assigned 282 interviewers to a treatment or a control group with regards to participating in a specialized averting refusals training (ART). Unlike the previous two studies, these authors' results showed no significant differences between interviewers as a result of whether or not interviewers attended specialized ART training. The measure used to compare interviewers was Completes to First Refusals Ratio (CFR) and is the number of completed interviews to the number of non-immediate hang-up first refusals. As an example of what this measures a CFR of .33 is two first refusals to one accept. The CFR measure for interviewers in this study ranged from .58 to .66 over the three experiments. The authors attributed the lack of a significant quantitative difference in interview performance between experimental treatment and control to several factors including, selection of experienced interviewers only, the call center environment, integrity of the experiment, and the changing nature of refusals. In this call center interviewers receive an ongoing array of training and coaching on an on-going basis so that elements of the training program may be picked up in the informal environment of the center.

One problem with the practice of using only response rate type metrics to evaluate interviewers is the implicit assumption that high cooperation at sample recruitment translates to effectiveness in the interview. Steinkamp (1964) provided empirical evidence that suggests that

interviewer productivity should be about more than just sample recruitment. By measuring other metrics (e.g. percent of ambiguous answers, average length of interview, variability in length of interview, item refusals on financial holdings, percent of respondents using records for financial reporting, and interviewer evaluation of questionnaires as complete) his results show that interviewers with high cooperation did not directly lead to a high rate of data capture on variables important to the study. He suggested that productivity measures which only evaluate respondent cooperation (response rate measures) may not be adequate when this is compared with the rate at which interviewers pick up key quantitative study information. His results failed to find a significant relationship between higher response rates and measures of in-interview effectiveness. He suggests that the most likely means of identifying effective interviewers is in analyzing patterns of performance (considering more than one measure) rather than in terms of performance in a single area.

17.3.2 Focused Training Designed to Improve Productivity

How do survey researchers build survey skill among their interviewing staff and how do they know their training activities make a difference in survey outcomes? More importantly how do surveyors identify interviewers who are assets and contributing to production from those they need to quickly identify as liabilities or as having deficiencies? What particular strategies are consistently used to identify training needs and to increase interview skills.

The kind of training interviewers need depends upon the type of respondent role to be addressed. Some respondent interactions require more active participation and reaction by the interviewer. To prolong an interaction, whether at the time of introduction or during the interview at time of an indication of abandonment, requires the interviewer to constantly

stimulate respondents and build rapport. Our observation is that most new inexperienced interviewers do not do this naturally and need training in this area. If a particular survey proves to have difficulty in recruitment, is lengthy, has sensitive subject matter, and/or is otherwise unappealing to respondents then there is greater demand on interviewers for having skills and tools to prolong interaction and persuade respondents to stay with the interview. The more difficult the survey, because of a sensitive topic or difficult respondents, the more training interviewers need to perform effectively in a given survey.

One method for practicing interviewing and learning survey content that has been around for a long time (Stanton, Back, & Litwak, 1956) is role playing, in which one interviewer participates as a respondent, and another interviewer participates as an interviewer. But when is role playing most beneficial and when is it least beneficial? Role playing is least beneficial, and is deemed to be not very effective when: 1) interviewers are left on their own to carry out the task without first learning what they are to practice, 2) role playing is unguided, and 3) role playing is not assessed for changes in interviewer behavior or knowledge. It may be difficult for an individual interviewer to accurately recall, discuss, and act out with another interviewer how survey introductions actually play out or to accurately describe how they maintain rapport with respondents. Even more difficult, is for new interviewers to fully comprehend the nuances of the respondent interviewer interaction and to know what they can do or say to respondents. In a training setting it may be more beneficial and valid for interviewers to first “see” or “hear” actual interviews and witness interviewer behaviors and interactions that were successful and unsuccessful in gaining respondent cooperation. Group discussion about the progress of an interview is helpful after interviewers can hear live examples of both successful and

unsuccessful introductions. In this way interviewers learn to recognize differences in interview behavior, tie it to outcomes, and start to understand what they themselves are doing when they are in an interview.

Role playing is most beneficial and effective when it is necessary for interviewers to know how they and respondents might act under the stress of a given situation. Respondent stresses can be related to: timing, attitudes about surveys or sponsorship, rights as a respondent, and confidentiality to name a few. Interviewer stresses may be related to lack of experience or ability, lack of knowledge, lack of confidence, and low expectations about the interaction. To role play effectively requires training tools and training methods - for interviewees (acting as respondents) to test their partner on recognizing the full range of respondent themes and to recognize and respond appropriately to each theme.

Role playing can be helpful to teaching and testing interviewers for respondent theme recognition, the practice of listening, and response skills. Role playing gives interviewers an opportunity to practice their skills with stressful and/or negative respondent interactions in a safe environment. We believe many small to medium survey centers rely on ad hoc role playing as a training method. Current practice suggests that role playing is used more as a method to familiarize interviewers with a new questionnaire rather than a way of testing for knowledge or recognition of themes. Ad hoc role playing as part of interviewer training may not constitute thorough enough interaction training and may have a high degree of performance variability between interview partners. It is highly likely in ad hoc role playing that interviewers are practicing only a small set of the types of respondent interactions. More formalized teaching of respondent themes and role playing with instructional materials and formalized objectives for

themes has been suggested and shown by some researchers in large survey facilities such as the U.S. Census Bureau (Mayer and O'Brien) as a way to improve interviewer performance.

Role playing during training by an "interviewer" and an "interviewee" partnering also permits observation. Not only can the interviewee assess the quality of the interviewer's interactions and instincts, they can immediately provide feedback on correct recognition of respondent themes (Fellows & Mawhinney, 1997). Basically, good scene construction for interviewer training materials requires well articulated respondent problems, practical solutions, and thorough testing. It is best if role play sessions can occur as part of regular training sessions, remedial trainings, and also as part of project based training sessions.

Another type of interviewer training that is useful in improving interviewer productivity is sometimes called "rapid response training" to denote a brief, quick training session. This training is designed to address a particular interviewer skill or productivity problem, such as one of the following: 1. refusal aversion; 2. non-specific respondent concerns; 3. time and burden concerns, 4. government concerns, 5. dealing with hostile respondents, 6. company or sample member "no survey" policy concerns, 7. confidentiality concerns, 8. pass off to another contact in sample unit, 9. active listening, 10. persuasion techniques, 11. taking the easy way out—avoiding self selection bias, 12. survey content concerns, 13. selection/sampled concerns.

Shuttles and his colleagues (2002; 2003) provide an example of this kind of training to help telephone interviewers avoid refusals and increase their overall productivity. This training teaches interviewers to focus their efforts on five specific interviewing skills: (1) recognition: learning the themes of respondents concerns; (2) diagnosing: learning to classify respondent's actual wordings into themes; (3.) modification: learning desirable interview behaviors to address

concerns; (4) delivery: learning to deliver a set of statements relevant to the respondent's concerns; and (5) rapid response - increasing the speed of response performance through practice. Their training incorporates many elements of successful training programs carried out by the Bureau of Labor Statistics, the Department of Agriculture, and the Bureau of the Census.

17.4 RESULTS OF A SURVEY OF TELEPHONE INTERVIEW ORGANIZATIONS

We wanted to know how other survey research centers that conduct telephone interviews measure interviewer productivity and performance, and how they use this information to manager interviewers, meet project goals, and staff the telephone facility. To accomplish this we designed an Internet questionnaire for survey research organizations. The sample consisted of all survey organizations listed in the 2005-2006 AAPOR Blue Book supplemented by the listing of organizations in attendance at the 2005 International Field Directors Technology conference, including those with international addresses. Questions for the survey were developed from the questions and issues identified in this paper.

The sample frame consisted of a total of 488 organizations, all of which were mailed a letter inviting them to participate in the Internet survey. Those for whom email addresses were available, were also sent an email message requesting their participation in the survey. A total of 178 organizations participated in the Internet survey, for a response rate of 38%. Of those responding, about 7.8% were ineligible because they did not conduct telephone interviews in-house. This left 150 organizations that completed the entire survey. Responding organizations are characterized in Table 17.1. The majority of organizations, 87%, are U.S. based organizations and 13% are international organizations that are primarily government statistical services. These can be classified further as: Academic (39.6%), government (3.7%), non-profit

(10.4%), and commercial (46.3%). The largest sector accounted for in our responses is commercial. Better than two-thirds of the organizations have 50 or fewer CATI stations at their main interviewing locations. Less than a fourth of the organizations reported having additional CATI locations beyond their main location. Only 10% of organizations have 50 or more CATI stations at locations beyond their main location.

Most organizations rely primarily on part-time interviewers supplemented with a few full time interviewers, for their telephone interviewing workforce. The average number of part time interviewers currently on staff was reported as 86 and the median number of part time interviewers on staff was 29. The average number of interviewers hired annually was reported as 176 and the median number of interviewers on staff was 37. Over half (54%) of the organizations reported having 45 or fewer part time interviewers currently on staff.

Organizations have few full-time interviewers. From the survey, over half of all organizations reported having three or fewer full time interviewers currently on staff. On average, pay for entry level interviewers is reported as \$8.40 dollars per hour and average hourly pay for all interviewers at the organizations responding to the survey was \$9.40.

The majority of survey respondents are personally “somewhat or very involved” in the design and administration of telephone surveys (50.3%) and the majority are “somewhat or very involved” in supervision and training of interviewers (51.2%). These results suggest that the survey was answered by the appropriate respondents and that survey respondents are well qualified to provide organizational level interviewer productivity and training information. While interviewer performance data is important to most organizations (70% say it is very important, and 26% say it is somewhat important), a handful of organizations (4%) think it is

unimportant. Over three-quarters of organizations are satisfied with the way their organization uses data on interviewer performance, but over 20% are dissatisfied.

Table 17.1 Characteristics of Survey Organizations Responding to the Survey

Type of Organization:	
Academic	39.63%
Government	3.07%
Commercial	46.03%
Non-profit	10.4%
Location:	
International	13.1%
United States	86.9%
CATI locations:	
Single main location	80.7%
Other additional locations	19.3%
Number CATI stations at main location:	
None	8.1%
1-20	31.5%
21-50	32.2%
51-100	14.8%
100+	13.4%
Number of Part- time interviewers currently on staff:	
<25	38.7%
26-50	32.0%
51-150	17.3%
>150	12.0%
Number of Full-time interviewers:	
<3	52.4%
3-10	15.9%
11-30	14.3%
>30	17.5%
Number of telephone interviewers hired in 2005:	
Range	0-5000
Mean	176
Median	37

17.4.1 Measuring and Evaluating Interviewer Productivity

The majority of survey organizations that conduct telephone interviews (95.2%) say that their organization measures the performance of their telephone interviewers. Many

(54%) indicate that interviewer performance data is available continually, and others collect it by shift (8.6%), per day (14.4%), per week (12.2%), or less often (10%). Over 81% of respondents said that interviewer productivity data is available through their CATI system. Despite the widespread availability of performance data on interviewers, only 54.4% of respondents said that their organization has standard productivity requirements that interviewers are expected to meet in order to keep their jobs, get promoted, or receive raises.

Table 17.2 Percent of Survey Organizations with Interviewer Performance Measures

Performance Measure	Percent of Organizations Producing
<u>CATI system produces:</u>	
Number of call attempts	92.4%
Number of interviews completed	97.0%
Number of refusals	87.0%
Number of ineligible	70.5%
Number of minutes/hours worked	93.1%
Length of completed interviews	89.9%
Attendance and tardiness	74.6%
Cooperation rate	60.3%
<u>Quality measures collected:</u>	
Supervisor ratings of interviewers	80.9%
Monitoring scores	65.6%
Number of questionnaire items with missing values	33.6%
Number of organizations	130

Most response rate productivity measures, (completes, refusals, hours interviewing, length of interviews) are available through organizations' CATI systems for better than 92% of organizations. Measurement of ineligibles is somewhat available, with 86.2% of organizations saying this is available through their CATI. Attendance and tardiness measures are not readily available for most organizations (63.2%) since these measures are not available from their CATI system. However, 29.6% say attendance and tardiness measures are available through their CATI system. Table 17.2 displays the percent of survey organizations that produce and collect each kind of interviewer performance measure.

The majority of survey organizations collect all of these performance measures, but surprisingly about 25% do not collect data on attendance or tardiness, and about 40% do not collect interviewer cooperation rates. Survey respondents were asked to indicate the three most important measures of interviewer efficiency in their organization. The most frequently reported measures included: calls per hour, completes per hour, rate of refusals, and general survey quality measures such as supervisory evaluations and monitoring scores.

When asked specifically about quality measures collected on interviewers the most frequently reported measure was supervisor ratings (81%) and monitoring scores (65.6%). Less than 34% of respondents indicated they collected information on missing values on questionnaire items as a measure of quality of interviewing.

Organizations reported they emphasize and use multiple measures as part of their standards to evaluate interviewers. A few organizations indicated having thresholds for performance, with the lowest 20% of interviewers advised to improve their performance or face termination. For the most part, evaluation scorings are comparative. Interviewers are compared

to others working on the same survey or survey project and across all studies worked.

Interviewers are compared to their own performance over time or on other studies. Another frequently mentioned performance standard was the result of regular monitoring assessments based on specific aspects of acceptable interviewing practice including: asking questions correctly and as worded, nonbiased probing, appropriate interaction with respondents, refusal avoidance, and ability to convert previous refusals, demeanor, and voice quality. Measures that look at basic work performance and work place ethics were also mentioned such as number of absences, tardiness, regular availability for work, adhering to schedule, following supervisor instructions, ability to handle technology such as CATI use, and longevity and tenure as an employee. Some organizations reported they have unionized interviewers and must comply with union reporting for layoffs.

A number of organization's report setting productivity thresholds and establishing benchmarks for decision making. The most frequently mentioned threshold for individual interviewer statistics was for comparisons to a group mean or average. Some organizations reported using information about the available interviewing budget to set interviewing performance thresholds on key measures. Some organizations indicated that they set quotas, pay incentives and pay on a per completed interview basis. Decision makers in organizations actively use productivity measures to establish levels of interviewer pay, to promote and reward interviewers, and to terminate interviewers who are not meeting the organization's standards of performance. Some of the threshold levels of performance mentioned included: lowest 20% advised to improve performance; lowest 33%; minimum of 56 dials/calls per interviewer hour; completed interviews per hour for an individual is expected to approach the 50% group mean;

individual's measures must be at average or above average compared to peers to stay employed; individual's measures must be at average or above average compared to peers to receive pay raises; individual's average across all projects worked must be at average or above average compared to group mean for 12 months to receive pay increases; and productivity bonuses awarded to the top 50% of productivity performers.

To better understand how organizations measure productivity the survey asked several questions about how many calls per hour, completes per hour, and refusals per hour, organizations expected for a 10-minute and a 20-minute RDD telephone survey. Table 17.3 displays respondents' expectations about the number of call attempts that telephone interviewers should be able to produce hourly for an RDD survey of the general public. The results show a lack of consensus about the number of call attempts to be expected, although just more than half (57.7%) of respondents suggest the number should be between 21 and 50 calls per hour. About 13% expected more than 50 call attempts per hour. Fewer than 10% expect less than 20 calls per hour, and about 20% of respondents don't know. Commercial organizations, in general, had higher expectations than academic organizations.

Table 17.3 Telephone Interviewer Productivity Expected – Number of Call Attempts

Number of Call Attempts	Percent
Less than 20	9.2%
21 to 30	18.5%
31 to 40	21.5%
41 to 50	17.7%
51 to 60	6.2%
61 to 70	3.8%
71 to 80	0%
More than 80	3.1%
Don't Know	20.0%
Total	100%

Table 17.4 displays respondents' expectations about the number of refusals that would be expected from a telephone interviewer every hour from RDD surveys of the general public, of 10 minutes and 20 minutes in length. Again, there is no clear consensus on what should be expected, with over 37% of organizations expecting fewer than three refusals per hour, regardless of the length of the interview, and about the same percent expecting four or more refusals per hour. Commercial organizations tended to expect a higher number of refusals than academic or government organizations.

Table 17.4 Telephone Interviewer Productivity Expected – Number of Refusals

Number of Refusals	10-Minute RDD Survey	20-Minute RDD Survey
Less than one	4.6%	6.2%
One	8.4%	8.5%
Two	11.5%	10.0%
Three	13.0%	12.3%
Four	6.1%	8.5%
Five	10.7%	9.2%
More than Five	18.3%	20.0%
Don't Know	27.4%	25.3%
Total	100%	100%

Table 17.5 displays respondents' expectations about the number of completed interviews that would be expected from a telephone interviewer every hour from RDD surveys of the general public, of 10 minutes and 20 minutes in length. About 20% of all organizations would expect no more than one 10-minute interview per interviewer hour. Another 50% of organizations would expect between one and two 10-minute interviews per hour. In comparison, about 65% of organizations would expect no more than one 20-minute interview per hour for a 20-minute telephone interview. Commercial organizations again tended to expect a higher number of completed interviews per hour than academic or government organizations.

Table 17.5 Telephone Interviewer Productivity Expected – Number of Completions

Number of Completed Interviews per Hour	10-Minute RDD Survey	20-Minute RDD Survey
About half an interview	0%	9.8%
More than half but less than one	2.3%	22.7%
About one	17.3%	32.6%
Up to one and a half	21.1%	18.9%
About two	29.3%	3.8%
More than two	18.8%	0.8%
Don't Know	11.2%	11.4%
Total	100%	100%

17.4.2 Using Interviewer Performance Information

Next we describe how survey research organizations use the data they collect on interviewer performance, including whether they use it to forecast the progress of a survey, or interviewing needs, and in particular whether they use it for improving their training of telephone interviewers. The survey results also describe how survey organizations deal with the issue of productivity in training interviewers.

Most organizations, 69.9% indicate that interviewer performance is very important to their organization but only 26.5% of organizations say they are very satisfied with the way their organization uses interviewer performance data and this exemplifies the challenge organizations face in trying to change their business operations and to estimate their costs of production. Table 17.6 displays the percent of organizations that say they use productivity measures in each of several ways. The majority of organizations said they used productivity to accomplish all but one of the goals listed in the table. Almost 96% of organizations said they used performance measures to communicate expectations to interviewers, but only 62.7% of organizations said

they used them to recalibrate their interviewing standards. The least use of performance interview information is in making adjustments to fielded sample. While almost 86.7% of organizations used performance measures to terminate poor or excessively unproductive interviewers, only 68.2% use them to reward highly productive interviewers. Performance measures are important to interviewer training, since almost 82.8% of organizations say they use them to retrain unproductive interviewers, and 87.5% say they use them to train new interviewers.

Table 17.6 How Survey Organizations Use Interviewer Performance Measures

Performance Measure Used for	Percent of Organizations
Forecasting the number of interviewers needed	83.6%
Forecasting the number of days required to reach survey goals	86.0%
Rewarding highly productive interviewers	68.2%
Terminating poor or excessively unproductive interviewers	86.7%
Reassigning interviewers based on their productivity	76.6%
Making adjustments in fielded sample replicates	39.4%
Communicating expectations to interviewers	96.1%
Retraining unproductive interviewers	82.8%
Training new interviewers on productivity issues	87.5%
Resetting or calibrating standards of interviewer performance	62.7%

17.4.3 Training and Retraining Telephone Interviewers

This section describes the telephone interviewing skills that survey organizations indicate

are important to being a productive telephone interviewer. We also discuss how survey organizations train and retrain telephone interviewers to improve their performance and productivity.

The basic skills required of interviewers include interacting with a computer through a keyboard and/or mouse, and sufficient typing ability to enter respondent comments and other text into a computer. All of these skills are trainable, although it is generally easier to find people who already have typing skills than to train people in this skill. Average time reported for training the basics of interviewing in the survey was 6.5 hours or less for 65.8% of centers. Only about one third of organizations reported more than 6 hours of basic training for interviewers. Longer trainings for basic interviewing was associated with organizations that annually hire larger numbers (151-200+ annually) of part time interviewers.

The vast majority (99.3%) of the survey research organizations conduct trainings for all new telephone interviewers before they can begin interviewing on a study. Better than 96% reported holding at least two types of regular trainings---interviewing basics and project level trainings. More than 91.7% of these organizations report following written standardized basic training procedures for developing the skills of newly hired telephone interviewers (Table 17.7). Supervisors in more than 88% of the organizations follow a standardized basic training system. There is large variation in the reported average training times per interviewer devoted to specific trainings. For instance, training the basics of interviewing for organizations ranged from a low of 30 minutes to a high of 30 hours, with the average training time for basic interviewing at 6.6 hours, with four hours as the most frequently reported duration of training. Of the types offered, the most intensive trainings (as measured by average training hours per interviewer) were

interviewing basics, computer based individual trainings (73.4%, with an average of 3.8 hours/interviewer) , and advanced interviewer trainings (56%, with an average of 3.3 hours/interviewer), respectively. Almost three fourths of all organizations (74%) answering the survey indicated they conducted remedial or performance improvement trainings. Of the 84 organizations that conduct remedial trainings, 54.1% spend one hour or less for this type of training.

Table 17.7 Types of Interviewer Training and Average Number of Training Hours

Types of Trainings	N	Percent of Organizations		Average Number of Hours
		No	Yes	
Training the basics of interviewing	130	1.5	98.5	6.5
Specific project training	129	3.9	96.1	3.0
Computer based individual interviewer training	128	26.6	73.4	3.9
Remedial or performance improvement training	123	26.0	74.0	1.8
Advanced interviewer training	128	45.3	54.7	3.3

Table 17.8 shows the results of asking organizations to rate the extent to which they included each of 22 separate topics in basic interviewer trainings. Organizations report they included most of these topics or activities “always” into their basic training with the exception of “pre-testing with actual respondents.” Only three activities were described as not always included by 60% or more of organizations, including: explanation of survey and interviewer error; how to tailor survey introductions; and pre-testing with actual respondents. The top twelve ranked training topics are essential elements to performing interviewing and understanding how to recruit and talk with respondents and code their responses into a database.

The remaining ten topics and activities are associated with understanding how to do particular aspects of interviewing better. These latter topics are somewhat more complex and theoretical in nature. If we assume that organizations included most of these topics in their interviewer training, and we assume an average length of basic interviewer training of about seven hours, then on average, less than 20 minutes is available for each topic or activity in basic interviewing training.

Advanced interviewer trainings are conducted by about half (54.7%), of the organizations with the average advanced training time reported for an individual interviewer as 3.25 hours. There are at least two reasons why organizations conduct advanced training for interviewers. The first is to train experienced interviewers for supervisory and other kinds of positions (e.g. monitoring). The goal of advanced training is to prepare them to evaluate other interviewers in their job function and to provide specific feedback to rectify identified problems and to maintain or improve quality of interviewing of the group or pool of interviewers.

A second purpose of advanced training is to train specific interviewers more in-depth, providing them with more background, tools, and theoretical information with the specific intent to keep them interviewing. This second group of interviewers may be asked to do recontacts of refusals or to do more difficult interviewing. Interviewers identified for advanced training are counted on for high performance interviewing. Table 17.9 provides a list of topics included in advanced interviewer training, and shows the frequencies with which organizations cover various topics.

Table 17.8 Topics and Activities Included in Basic Telephone Interviewer Training

Topics and Activities	N	Percent			
		Always	Some times	Rarely/ Never	Don't know
Rules for standardized interviewing	124	95.2	4.0	0.8	0
Explanation and examples of probing and feedback	122	95.1	3.3	1.6	0
Demonstration of how to use CATI system	124	90.4	4.8	4.8	0
Explanation of types of questions (categorical vs. open ended)	122	90.2	5.7	4.1	0
Explanation of respondent reluctance and cooperation	121	90.1	8.3	1.6	0
Proper interaction with respondents	124	88.7	8.9	2.4	0
Addressing respondent concerns	122	87.7	9.8	2.5	0
Explanation of survey introductions	123	86.2	12.2	1.6	0
Practice and role play by interviewers	124	86.3	9.7	4.0	0
Explanation of refusal behavior and interactions	122	84.5	11.5	3.2	0.8
Explanation/use of case disposition codes	121	82.6	10.7	4.1	2.6
Practice and role playing mock interviews	124	82.3	11.3	6.4	0
Data entry errors and ways to make corrections	122	81.1	10.7	8.2	0
Explanation of research ethics	122	79.6	13.9	5.7	0.8
How to control making interviewer errors	124	75.8	13.7	8.0	2.5
Expectations of interview performance and how performance is measured	121	73.6	14.0	9.9	2.5
Explanation and practice of dialing	124	72.6	11.3	15.3	0.8
Human subjects research and confidentiality	121	67.8	17.4	12.4	2.4
Special emergency situations and what to do	121	66.9	21.5	10.8	0.8
Scenario testing of questionnaire branching	123	62.6	13.0	20.3	4.1
Explanation of survey and interviewer error	124	57.3	15.3	22.6	4.8
How to tailor survey introductions	123	54.5	20.3	25.2	0
Pretest with actual respondents	121	28.1	34.7	36.4	0.8

For advanced interviewer trainings the focus of topics is more towards improving an individual interviewer's skill for increasing survey participation and countering non-response

rather than training about overall performance issues, performance measurement, or rating other interviewers' for performance.

Table 17.9 Advance Interviewer Training Topics and Activities

Topics and Activities	N	Percent of Organizations			
		Always	Sometimes	Rarely/ Never	Don't know
Recognition of respondent concerns	115	60.9	19.1	15.6	4.4
Recognition of improper interactions	114	53.5	22.8	18.4	5.3
Refusal conversion techniques	114	57.9	25.4	12.3	4.4
Diagnosing poor interactions or introductions	115	47.8	26.1	20.8	5.3
Monitoring and scoring interviewer performance	113	46.9	25.7	21.2	6.2
Expectations of performance measurement system	112	43.8	25.9	24.1	6.1
Recognition of errors	114	43.0	28.1	21.9	7.0
How to provide feedback on performance	115	40.9	24.3	26.1	8.7

Table 17.10 Methods Organizations Use to Train Interviewers

	N	Percentage			
		Always	Sometimes	Rarely/ Never	Don't Know
Project specific training at the beginning of all new telephone projects	122	90.2	9.0	0.8	0
Basic interviewing skills training	124	86.3	10.5	3.2	0
Scenario testing of specific questionnaire skip patterns for projects	123	75.6	13.8	10.6	0
Practice mock interviews	123	64.3	24.4	10.5	0.8
Pretest with actual respondents	123	22.8	32.5	43.9	0.8
Interviewer knowledge test to certify onto a project	122	19.7	23.0	56.6	0.7
Audio sample of interview	123	8.9	22.0	69.1	0

Table 17.11 Use of Specialized Training for Improving Interviewer Performance.

	Percentage
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	N	Always	Sometimes	Rarely/ Never	Don't Know
Actual audio samples of survey introductions	122	5.7	20.5	71.3	2.5
Audio samples of effective interviewing interactions	122	4.1	24.6	68.8	2.5
Audio examples of respondent – interviewer interactions	121	4.1	26.4	67.0	2.5
Practice drills to increase recognition and rapid response to respondent concerns	122	18.9	29.5	47.5	4.1
Practice or role play mock interviews	120	54.2	23.3	19.2	3.3

17.5 DISCUSSION AND CONCLUSIONS

A common concern of all survey organizations is how to prepare a telephone interviewer workforce for conducting telephone interviews in the most efficient and cost effective manner possible. While a large percentage of survey centers (95.2%) regularly collect productivity information on interviewers and it is readily available to them for decision making, only 54.4% use this information as a way analyze and to make decisions about interviewers. The main differences we find between survey organizations is in the average number of hours per interviewer they devote to trainings, inclusion of training topics, use of specialized training activities, and the ways they monitor and evaluate interviewer productivity. We found very few organizations consistently using specialized training tools and activities that look at effectiveness of interviewing techniques such as analyzing and demonstrating audio samples of introductions or in-interview interactions, rapid response drills to respondent concerns, and knowledge certification. However, some organizations are beginning to venture into regularly using these tools as a way to improve surveying.

17.5.1 Measuring Interviewer Productivity

Survey organizations that conduct telephone interviews are concerned about productivity, they collect a variety of productivity data, and some use these data to identify interviewers to receive further training or to be let go. The majority of organizations use productivity measures based on interview completions, such as number of completed interviews or completion rate, although many also look at measures such as number of calls per hour, rate of refusals, and simple attendance. As our analysis of some of these measures demonstrates, the absolute levels of these measures changes during the course of a survey so that organizations need to take into account at what stage of a survey productivity is measured.

The most frequently used productivity measures for telephone interviewing are call attempts per hour, and completes per hour. The majority of survey organizations collect this information routinely, and it is available to most through their CATI system continuously while a survey is in the field. There is not a clear consensus on the number of call attempts, refusals, or the number of completed interviews a telephone interviewer should be able to produce in one hour. The major differences seem to be between commercial survey organizations and the non commercial organizations. Commercial organizations expect a higher number of completed interviews per hour from their telephone interviewers, and they also tolerate a higher number of refusals per hour, than the noncommercial organizations. For a 10-minute RDD survey, 68% of commercial organizations expect two or more completed interviews per hour, in comparison to only 31% of non-commercial organizations that expect this. For a 10-minute RDD survey, 56% of commercial organizations expect five or more refusals per hour, in comparison to only 13% of non-commercial organizations that expect this.

The results for a 20-minute RDD survey similarly reveal differences between the commercial survey organizations and the non-commercial survey organizations. Over 75% of commercial organizations would expect one or more completed interviews per hour, in comparison to only 39% of non-commercial organizations. Over 47% of commercial organizations would expect five or more refusals per hour, from a 20-minute RDD survey, in comparison to fewer than 13% of non-commercial organizations. Clearly standards of interviewer productivity differ among survey research organizations, and are dependent on the specific goals of each organization.

These differences between commercial and non-commercial survey organizations are also apparent in how productivity information is used. A higher percentage of commercial organizations (45%) use performance measures to make adjustments in fielded sample, than non-commercial organizations (32%). And, a higher percentage of commercial organizations (84%) than non-commercial organizations (65%) use performance measures to reassign interviewers based on their productivity and performance.

17.5.2 Training, Evaluating, and Rewarding Telephone Interviewers

This paper presents the results of a survey of telephone interview organizations and their practices with respect to managing and training interviewers, and measuring productivity. From these data, we suggest a number of themes regarding what measures of productivity are most useful, and how to use this information to train interviewers.

Evidence from the survey of survey research organizations suggests that best practice for managing interviewers must be continual evaluation of their most important activity - interviewing. The majority of organizations depend on systems for developing interviewing

skills through on-going assessment of individuals and providing them with routine feedback on interviewing behaviors. These systems in terms of best practices include having written training protocols, experienced trainers, and a well-trained supervisory and monitoring force.

Organizations offering the most innovation in training are focusing on productivity measures and using this system to decide on training issues and establish reinforcements for improving interviewer behavior. Other signs of innovation are the use of measures other than response rates that extend productivity to also encompass interviewer effectiveness such as the variability of average interview length, use of audio recordings, analyses of survey content variables for outliers, and interviewer knowledge certification. Assessing the rate of data capture for specific variables is another area important for improving quality of statistics yet not typically measured by organizations for evaluating interviewer effectiveness.

The survey results demonstrate how different survey organizations vary in their expectations of interviewer productivity, and how this translates into differences in interviewer training. Ultimately, survey error may be significantly impacted by these types of interviewer management decisions and goals. We believe that there is much more that survey organizations can do with the productivity data that they routinely collect, and that these data will become increasingly important as a way to control survey costs and improve the management and training of telephone interviewers.

ACKNOWLEDGMENTS

Opinions expressed in this chapter are those of the authors and do not represent those of Washington State University. We would like to thank all of the people who participated in the Internet survey of organizations, and all those who willingly provided us with copies of their training materials. We also want to thank Jim Lepkowski and Clyde Tucker for writing the cover letter and endorsing the survey.

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