Identifying Common Verbatim Errors Through Use of Field Observations

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Abstract
Standardized survey interviewing dictates that interviewers read questions verbatim. Reading questions verbatim ensures that every respondent is presented survey items in the exact same way. Training interviewers on the importance of reading all questions verbatim is one important way to ensure that standardized interviewing procedures are followed during each interview. Knowing which questions interviewers are most likely to misread allows project staff to improve training programs and reduce verbatim reading errors.

The National Survey on Drug Use and Health (NSDUH) is an annual survey that provides national, state and substate data on substance use and mental health in the civilian, noninstitutionalized population age 12 and older. Since 2001, the NSDUH has used field observations as a tool to assess how closely field interviewers adhere to project protocols, including reading verbatim, and to subsequently improve training and field procedures.

This paper reviews the verbatim errors and exact questions observed not being read verbatim. We provide a summary of the types of questions with the most verbatim errors observed on the NSDUH and offer possible explanations for these errors. The types of questions with high verbatim errors observed on the NSDUH may be indicative of common verbatim errors committed on other surveys as well.

Key Words: Verbatim, field observations, data quality

1. Introduction

In standardized survey interviewing, instrument design and interviewer training are crucially important to ensuring proper administration of the questionnaire, and to the overall success of the survey (American Statistical Association, 1995). Proper administration of interviews includes reading questions verbatim to ensure that every respondent is presented survey items in the exact same way. Reading questions verbatim has been accepted as one of the most fundamental techniques of standardized interviewing (Maynard and Schaeffer, 2002) and training interviewers to read verbatim helps reduce the contribution of interviewer effects to response error (Loosveldt, Carton, and Billiet, 2004). On the National Survey on Drug Use and Health (NSDUH)

interviewers receive extensive training and regular reminders on the imperativeness of reading screens verbatim. However, data from field observations indicate there are certain modules within the NSDUH screening and interview questionnaires that interviewers continue to fail to read verbatim.

This study is designed to determine which questions are most commonly observed not being read verbatim on the NSDUH, and to understand the structure of the question screens that are most likely to not be read verbatim. We first identify which screens are most commonly observed not being read verbatim (those screens observed not being read verbatim at least five percent of the time, based on field observation data) and then categorize those screens into four different types of screens or questions. Knowing which screens and questions interviewers are most likely to misread allows project staff to further investigate why the screens are not being read verbatim, improve training programs and reduce verbatim reading errors. Knowing which *types* of screens and questions interviewers are most likely to misread can allow for improvements in general questionnaire design and interviewer training programs.

1.1 Background

The National Survey on Drug Use and Health (NSDUH) is a field survey that provides national, state and sub-state data on substance use and mental health in the civilian, non-institutionalized population age 12 and older. The NSDUH is conducted by RTI International under contract with the Substance Abuse and Mental Health Services Administration (SAMHSA).

Data are collected on a quarterly basis each year, with approximately 140,000 household screenings and 67,500 interviews completed annually. Interviewers use an iPAQ handheld computer to complete the screening and a laptop computer to complete the interview. All screening questions are interviewer-administered. The interview questionnaire uses both Computer Assisted Personal Interviewing (CAPI) and Audio Computer Assisted Self-Interviewing (ACASI) techniques. The interview begins with a short CAPI portion, is followed by an extensive ACASI section, and ends with another CAPI section. All questions related to drug use and mental health (the most sensitive questions of the interview) are included in the ACASI section.

Approximately 700 interviewers are staffed on the project. With 700 interviewers dispersed across the nation working primarily on their own, completing 67,500 interviews annually, verification information is an essential component of ensuring the collection of high quality data on the NSDUH. On the NSDUH, telephone calls are used as the primary method to verify interviewer contact and to ensure proper protocols were followed. Mail verification and field verification methods are also sometimes employed when contact attempts by telephone have been unsuccessful. Several complex reports are generated and reviewed on a regular basis to help ensure the collection of accurate and high quality data.

Field observations are used as an additional important NSDUH data quality tool. Field observations have been conducted on the NSDUH since 2001 and are used to assess and monitor how closely field interviewers adhere to project protocols and to subsequently improve training and field procedures. While the NSDUH employs several other data quality methods to ensure the collection of high quality data, field observations are the only way in which verbatim errors are measured.

1.1.1 NSDUH field observations

Each quarter NSDUH project staff observe interviewers conduct in-person interviews and note any errors committed. Project staff travel to observe field interviewers complete screenings and interviews in their regularly assigned areas. Field observations are a valuable tool because they allow project staff to see and hear interviewers conduct screenings and interviews in their entirety. Field observations have been recognized as a data quality method that provides the most excellent level of detail (Thissen, Fisher, Barber, and Sattaluri, 2009).

Field observations can also be one of the most costly methods of data quality (Thissen, et. al, 2009) and, therefore, NSDUH interviewers are selected for observation based on specific criteria. New interviewers, preferably in their second quarter of work, and interviewers who have been previously observed committing significant errors are selected for observation each quarter. Other interviewers who have never been observed and are in close geographic proximity to selected interviewers are often selected and observed for efficiency. Interviewers who have committed significant errors in a previous observation are selected for observation each quarter until their results improve, or progressive disciplinary action based on field observation errors results in their termination from the project. Approximately 40 – 60 observations are completed each quarter.

Observers use paper checklists to record any procedural errors observed, including screening and interview items not read verbatim. Data from paper checklists are then transferred to electronic versions on the project's Case Management System (CMS) where results are reported in aggregated form. The electronic checklists include question IDs to allow observers to identify which questions were not read verbatim. Observers are also required to include comments on all errors marked, describing the specific error(s) observed.

2. Methods

2.1 Data
This study examines NSDUH field observation data collected across eight quarters of work, from January 2009 through December 2010. During this time 366 observations were completed, consisting of 953 screenings and 481 interviews.

2.2 Field Observation Selection Process
Interviewers were selected for observation based on experience and results from previous observations. Of the 366 observations in this study, 65% (n=239) were completed with new interviewers (interviewers who had worked less than four quarters), 17% (n=61) were completed with interviewers who had been observed committing significant errors in the past, and 18% (n=66) were completed with veteran interviewers (interviewers who had worked four quarters or more).

2.3 Tracking Verbatim Errors
Verbatim errors are possible on 177 different screening and interview screens; 16 iPAQ screens read during the screening and 161 CAPI screens read during the interview. (ACASI screens are not included as screens with potential verbatim errors as these screens are not read or seen by interviewers, only by interview respondents.) Observers

note which screens were not read verbatim during observations and then upload this information to a web-based Case Management System (CMS).

For all of 2009 and Quarters 1 and 2 of 2010, items marked as verbatim errors were identified and observer notes were manually reviewed to identify which screens specifically were not read verbatim. In Quarter 3 2010 a new system was implemented to allow observers to select from a list those screens which were not read verbatim. For Quarters 3 and 4 2010 all questions not read verbatim were aggregated from results entered by observers through the CMS. Data from both methods were aggregated for this study.

3. Results

Overall verbatim errors observed in 2009 and 2010 were relatively low. The total verbatim error rate for screenings was 2.90% (calculated by dividing the total number of verbatim errors, 442, by the total number of possible errors, 953 screenings observed multiplied by 16 different iPAQ screens). The total verbatim error rate for interviews was 1.19% (calculated by dividing the total number of verbatim errors, 925, by the total number of possible errors, 481 observations multiplied by 161 different CAPI screens). The majority of the 177 screens that may be read to respondents were read verbatim, with 13 screens observed not being read verbatim at least 5% of the time. Figures 1 and 2 demonstrate trends in observed verbatim error rates for screenings and interviews, respectively.
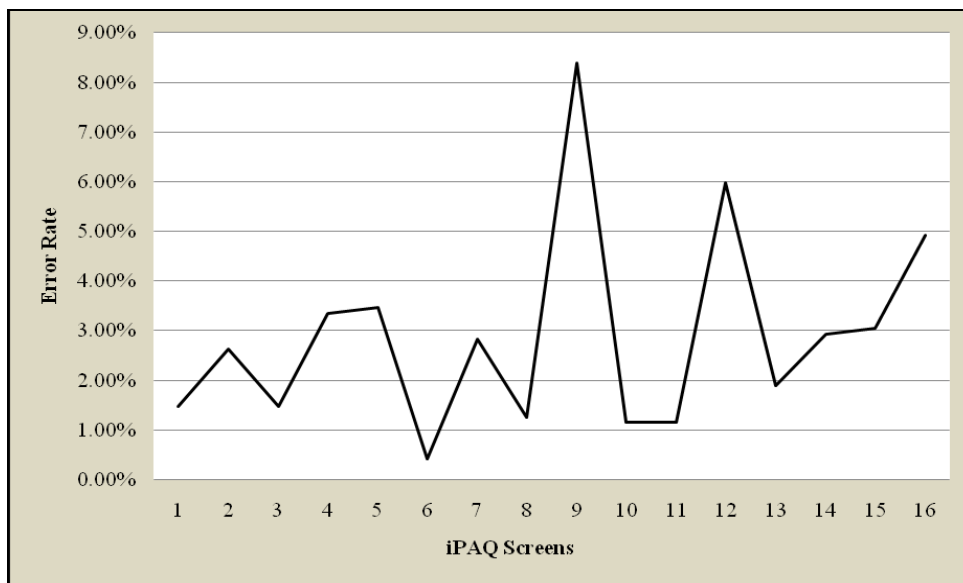

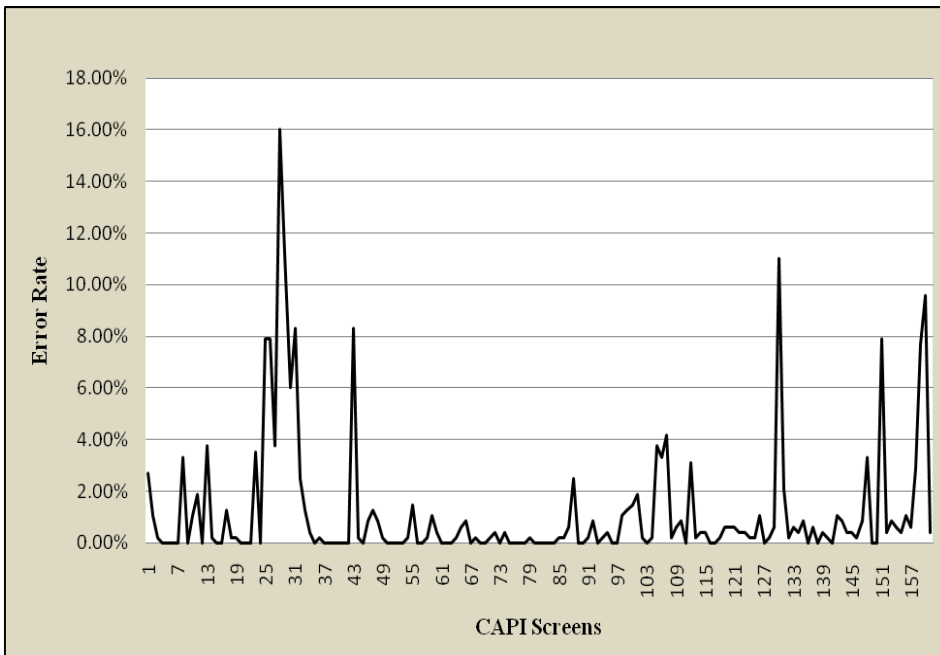**Figure 1:** Screening Verbatim Error Rates by Screen

Figure 2: Interviewing Verbatim Error Rates by Screen

Of the 13 screens observed not being read verbatim at least 5% of the time, two were screens from the iPAQ screening and 11 were screens from the CAPI portions of the interview. Figure 3 shows the error rates by screen name, for each of these 13 screens. (Actual screen text is included in the Conclusions section of this paper.)
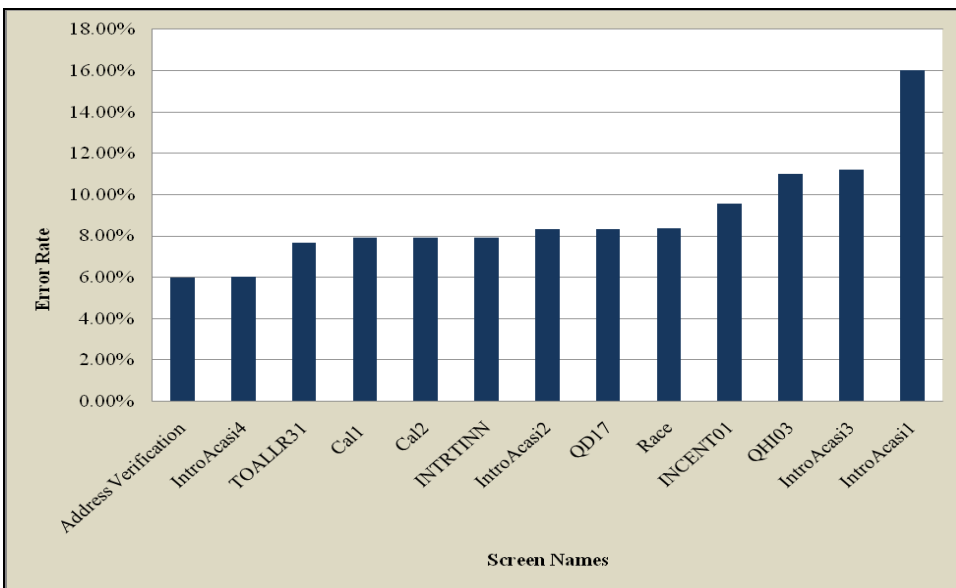

Figure 3: Screens Observed Not Being Read Verbatim at Least 5% of the Time

These 13 screens can be categorized into four screen types: *Instructional Text*, *Question Not Completed by Interviewer*, *Question Followed by Text*, and *Other*. Table 1 displays the screen ID, screen type, whether the screen is from the screening (SCR) or interview

(IVW), and the frequency in which the screen was observed not being read verbatim (Error Rate). As depicted in Figure 4, *Instructional Text* was by far the most common screen type observed not being read verbatim. Of the 13 screens observed not being read verbatim at least 5% of the time, 62% (n=8) fall into this category. Fifteen percent (15%) (n=2) are categorized as *Question Not Completed by Interviewer*, 15% are categorized as *Question Followed by Text*, and 8% (n=1) are categorized as *Other*.

Table 1: Most Common Screens Not Read Verbatim

| Screen ID	SCR/IVW	Screen Type	Error Rate
Address Verification	SCR	Question Not Completed by Interviewer	5.98%
IntroAcasi4	IVW	Instructional Text	6.03%
TOALLR31	IVW	Instructional Text	7.69%
Cal1	IVW	Instructional Text	7.90%
Cal2	IVW	Instructional Text	7.90%
INTRTINN	IVW	Other	7.90%
IntroAcasi2	IVW	Instructional Text	8.32%
QD17	IVW	Question followed by Text	8.32%
Race	SCR	Question Not Completed by Interviewer	8.39%
INCENT01	IVW	Instructional Text	9.56%
QHI03	IVW	Question followed by Text	11.02%
IntroAcasi3	IVW	Instructional Text	11.23%
IntroAcasi1	IVW	Instructional Text	16.01%
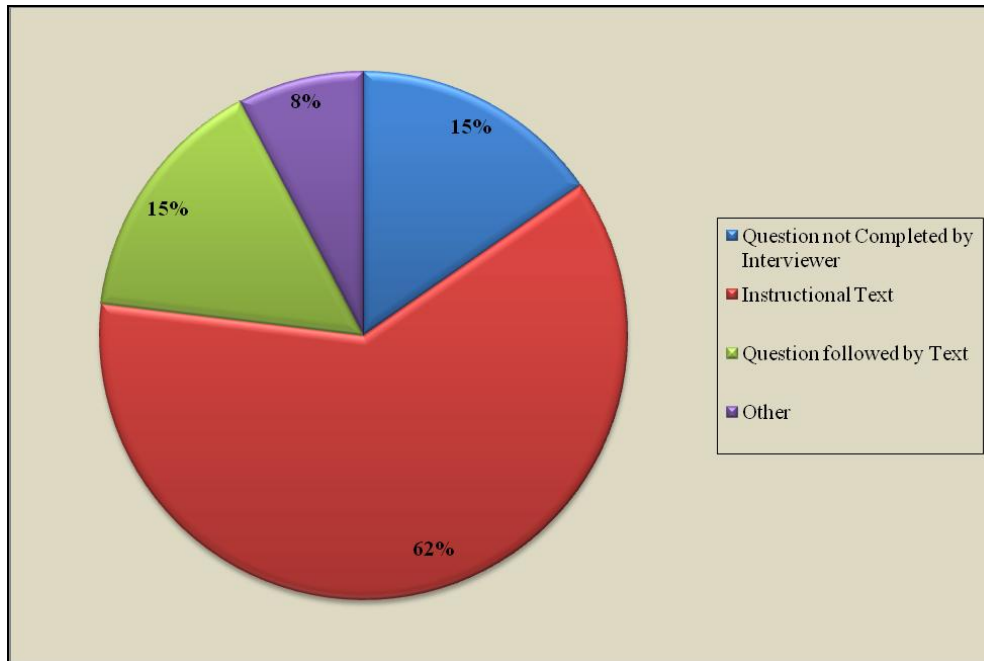
Figure 4: Breakdown of Most Commonly Misread Screens (at least 5% error rate) by Screen Type

4. Conclusions

Overall, it was pleasing to find most screens are read verbatim most of the time. While any verbatim error is a concern, other studies examining verbatim errors have found verbatim errors to be very common. Mangione, Fowler, and Louis (1992) found that interviewers misread 17% of survey items and Lepkowski, Couper, Hansen, Landers, McGonagle, and Schlegel (1998) found reading errors in 31% of survey items.

While our results are fairly positive, it is still concerning to discover verbatim errors. Our results help us identify which types of screens are most likely to not be read verbatim, which can allow for greater attention during training and exploration into how these types of verbatim errors can be reduced. The remainder of this section provides a description of the actual text included in the screens most commonly observed not being read verbatim and offers possible explanations for why they were observed not being read verbatim at higher rates than other screens.

4.1 Instructional Text
Screens containing only instructional text were the most likely to be observed not being read verbatim. Eight (8) of the 13 screens observed not being read verbatim at least 5% of the time are categorized as instructional text. We hypothesize several reasons for this:

1. Interviewers feel they are helping respondents better understand the information by explaining screen text in their own words, rather than reading verbatim.

2. Since there is no question being asked or data being collected at these screens, interviewers forget the screens must still be read verbatim.

3. All of these screens require interviewers to do other activities in addition to reading the text on the screen, including writing, pointing out keys on the keyboard, and handing items to the respondents. Multi-tasking and taking their eyes off the screen to carry out other tasks may cause interviewers to lose their place and misread a screen.

The eight instructional text screens observed not being read verbatim at least 5% of the time include two reference date calendar screens (Cal1 and Cal2), four screens introducing the ACASI section of the interview (IntroAcasi1, IntroAcasi3, IntroAcasi4, and IntroAcasi2), one screen explaining verification procedures (TOALLR31), and one screen detailing the incentive payment procedures (INCENT01). Each of these screens is explained in greater detail below. Please note green text in all caps are instructions to the interviewer and are not read aloud to respondents.

4.1.1 Reference Date Calendar Screens (Cal1 and Cal2)
Several questions in the NSDUH questionnaire reference different time periods (past 30 days, past year, lifetime). In the beginning of the interview, interviewers complete a reference date calendar to help respondents remember when those time periods occurred. These screens require interviewers read verbatim from the screen while writing, circling and underlining on a paper calendar. Removing their eyes from the screen to write on the calendar may cause interviewers to lose their place or misread one of these screens. Additionally, if an interviewer adds explanations to these screens, it is also considered an error. Figure 5 and figure 6 show the reference date calendar screens which were each observed not being read verbatim 7.9% of the time..

Throughout the rest of this interview, the computer will ask you questions about three time periods, the past 30 days, the past 12 months, and your lifetime. To help you remember the first two time periods, let's mark this calendar with the beginning dates for each one of them.

SHOW CALENDAR TO RESPONDENT.

Now, let's think about the past 30 days. According to the calendar March 6, 2011 was 30 days ago. I'll call that your 30-day reference date, and I will write March 6, 2011 here on the calendar.

WRITE March 6, 2011 FOR 30-DAY REFERENCE DATE ON CALENDAR AND CIRCLE DAY; UNDERLINE ENTIRE 30-DAY PERIOD FROM March 6, 2011 TO April 4, 2011.

PRESS [ENTER] TO CONTINUE.

Figure 5: Cal1 Screen

A number of questions will ask about the past 12 months, that is since this date last year. According to the calendar April 4, 2010 was 12 months ago. I'll call that your 12-month reference date.

WRITE April 4, 2010 FOR 12-MONTH REFERENCE DATE ON CALENDAR, AND CIRCLE DAY ON CALENDAR.

PRESS [ENTER] TO CONTINUE.

Figure 6: Cal2 Screen

4.1.2 Intro to ACASI Screens (IntroAcasi1, IntroAcasi3, IntroAcasi4, and IntroAcasi2)

At the end of the first CAPI portion of the interview, before the interviewer turns the computer over to the respondent for the ACASI portion, there are several screens explaining how to use the interview program that must be read verbatim to each respondent. The first three screens, IntroAcasi1, IntroAcasi3, and IntoAcasi4 all require interviewers to point out the different keys discussed on each screen, and had error rates of 16.01%, 11.23%, and 6.03%, respectively. Again, removing their eyes from the screen may cause interviewers to lose their place. The third screen, IntroAcasi2 (8.32% error rate), requires the interviewer to retrieve headphones and point out their features while reading the screen. Additionally, it appears interviewers often feel compelled to add information on these screens, possibly to help ensure respondents understand how to use the equipment. Figures 7, 8, 9 and 10 show these Intro to ACASI screens observed not being read verbatim at least 5% of the time.

You will do an important part of this interview on your own, using the computer and headphones. Before you start, we'll go through a short practice session so you can learn how to use this computer and our interview program. Let me quickly point out the keys you will use. The computerized practice session that follows will go through what each key does in greater detail.

MOVE COMPUTER SO RESPONDENT CAN SEE THE KEYBOARD AND POINT OUT THE FOLLOWING:

[POINT TO THE ROW OF FUNCTION KEYS] First, these are the function keys. The function keys and what they do are labeled for you.

[POINT TO F3] If you don't know the answer to a question, press F3.

[POINT TO F4] If you don't want to answer a question, press F4.

[POINT TO F7] If you want to turn the sound off, press F7. To turn it on again, press F7 again.

PRESS [ENTER] TO CONTINUE.

Figure 7: IntroAcasi1

These next items will help you enter your answers into the computer.

[POINT TO THE ROW OF NUMBER KEYS] These are the number keys.

[POINT TO THE ENTER KEY] The Enter key is here,
[POINT TO THE SPACE BAR] the space bar is here,
[POINT TO THE BACKSPACE KEY] and the Backspace key is here.

[POINT TO THE BOTTOM OF THE SCREEN] The answers that you enter will show up here at the bottom of the screen.

PRESS [ENTER] TO CONTINUE.

Figure 8: IntroAcasi3

There are a couple of computer features that you will not use.

[POINT TO ON/OFF SWITCH] This button up here turns the machine on and off. Please do not press it! It will turn the machine off, and we'll lose the interview.

[POINT TO TOUCHPAD] Also, please do not touch this pad. This might disrupt the interview.

PRESS [ENTER] TO CONTINUE.

Figure 9: IntroAcasi4

Lastly, these headphones will allow you to listen to the interview questions.

HAND HEADPHONES TO RESPONDENT.

You can adjust the volume here [DEMONSTRATE VOLUME ADJUSTMENT ON THE HEADPHONE CORD].

Please put on your headphones. When you are ready, let me know.

MOVE COMPUTER SO RESPONDENT CAN USE IT.

ONCE RESPONDENT HAS HEADPHONES ON, PRESS "1" AND [ENTER] SO R CAN BEGIN PRACTICE SESSION.

Figure 10: IntroAcasi2

4.1.3 TOALLR31

At the end of the interview interviewers request respondents write their telephone number and address on a form for quality control purposes. This screen requires interviewers to read from the screen, complete their section of the form (if not done so already), hand the form and envelope to the respondent and then continue reading. It is possible some interviewers lose their place on this screen, or may feel they can explain the information better themselves. The error rate for this screen was 7.69% and it is displayed in figure 11.

It is important that I do my job correctly; therefore, my supervisors will be checking on my work. Would you help me by printing your home telephone number and address on this form? [GIVE QUALITY CONTROL FORM AND ENVELOPE TO RESPONDENT.] Then place it in the postage-paid envelope so that my supervisor can write or call you in several weeks to confirm that I did my job. Please seal the envelope when you are finished. As you can see, this is kept separate from your answers so they will still be completely private.

PRESS [ENTER] TO CONTINUE.

Figure 11: TOALLR31

4.1.4 INCENT01

This final screen read to respondents is the incentive payment screen. It was observed not being read verbatim 9.56% of the time. Interviewers pay the respondent, sign the payment receipt, hand the respondent a copy of the payment receipt, and read text from the screen. It is possible interviewers miss one portion of this screen, or they may feel it is acceptable to summarize in their own words. Figure 12 shows the INCENT01 screen.

PAY RESPONDENT $30 CASH. SIGN INTERVIEW PAYMENT RECEIPT FORM AND GIVE TOP COPY TO RESPONDENT.

I have signed this form to indicate that I have paid you the $30 for this interview. At the bottom of this form, we have included national hotline numbers that you can call if you ever feel you need to talk to someone about mental health or drug use issues. [IF THE RESPONDENT WILL NOT ACCEPT THE CASH INCENTIVE, MARK THE APPROPRIATE BOX ON THE INTERVIEW PAYMENT RECEIPT FORM.]

IF NOT DONE EARLIER, GIVE ADULT RESPONDENT OR PARENT/GUARDIAN OF YOUTH THE Q&A BROCHURE.
(For more details on the National Survey on Drug Use and Health, this brochure includes answers to common questions, website addresses and other information.)

Now I will finish some questions to show that I did the interview.

Thank you very much for your help.

PRESS [ENTER] TO CONTINUE.

Figure 12: INCENT01

4.2 Question Not Completed by Interviewer

Two (2) of the 13 screens observed not being read verbatim at least 5% of the time are categorized as question not completed by interviewer. These are questions that interviewers are required to read in their entirety before accepting an answer from a respondent. For the following two screens, interviewers did not complete the question before accepting an answer from a respondent. Both of these screens occur during the screening process.

4.2.1 Race

On the screen shown in figure 13, interviewers are required to read all race options in the question, even if a respondent interrupts after hearing his/her own race. This screen had an error rate of 8.39%, which suggests many interviewers did not continue reading all race options after being interrupted by the respondent. We hypothesize this may be the result of the interviewer feeling rushed by the respondent.

Householder Race

Line 013 110 Pond Street

Are you White, Black or African American, American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, or Asian?

Race:
- [ ] White
- [ ] Black or African American
- [ ] American Indian or Alaska Native
- [ ] Native Hawaiian/other Pacific Islander
- [x] Asian
- [ ] Other

(CHECK ALL THAT APPLY)

Span ChangeSR Exit

Figure 13: Race

4.2.2 Address Verification

On the screen shown in figure 14, interviewers are required to verify respondents' addresses by reading the street address, city, state and zip. With an error rate of 5.98%, it appears that some interviewers did not read the complete address, including city, state and zip, but verified only the street address, or only the street address and city.

Address Verification

Line 013 110 Pond Street

I just need to verify -- is this

STREET: 110 Pond Street

CITY: Cary

STATE: XX

ZIP: 27511

| Address Is Correct - Continue |
| Need To Edit Address |
| FI At Wrong Address |

Span Exit

Figure 14: Address Verification

4.3 Question Followed by Text

Two of the thirteen screens observed not being read verbatim at least 5% of the time are categorized as question followed by text. The two interview screens that fall into this category (QD17 and QHI03), contain a question followed by explanatory text. Displayed in figures 15 and 16, QD17 and QHI03 had error rates of 8.32% and 11.02%, respectively. It appears some interviewers do not read the text that follows after they read the question, either because they forget or because the respondent answers the question without hearing the explanatory text and the interviewers do not believe the explanatory text is necessary.

The next questions are about school. Are you now attending or are you currently enrolled in school? By 'school', we mean an elementary school, a junior high or middle school, a high school, or a college or university. Please include home schooling as well.

Figure 15: QD17

Are you currently covered by TRICARE, or CHAMPUS, CHAMPVA, the VA, or military health care?

These programs cover active duty and retired career military personnel and their dependents and survivors and also disabled veterans and their dependents and survivors.

Figure 16: QHI03

4.4 Other

The final screen observed not being read verbatim at least 5% of the time is categorized as "other." The other category contains one screen, INTRTINN, with an error rate of 7.9%. On this screen interviewers are instructed to hand the respondent a card with a list of income sources, read the text on the screen and read the list of income sources listed on the card (also listed on the screen). It appears some interviewers do not remember to read the list of income sources since the respondent also has a visual list in front of him/her. In figure 17, the black text is to be read to the respondent, the green text is a note to the interviewer, and the blue text is a reminder to emphasize these words when reading to the respondent.

HAND R SHOWCARD 16a. Here is a list of some other sources of income. When you answer the next questions, please consider these as well as the other sources that we just talked about.

INTERVIEWER: PLEASE READ THIS ALOUD TO THE RESPONDENT AS HE/SHE FOLLOWS ALONG ON THE SHOWCARD.

Veteran's Administration payments
Other disability, retirement or survivor pension
Unemployment or worker's compensation
Interest income
Dividends from stocks or mutual funds
Income from rental properties, royalties, estates or trusts
Alimony
Child support

PRESS [ENTER] TO CONTINUE.

Figure 17: INTRTINN

5. Applications

Overall, field observations have helped reveal areas that need to be given additional emphasis in training, helping to improve data quality. At the same time, they have revealed areas that are less problematic and could be handled using an alternative, less expensive training method.

Verbatim error information is an excellent tool for helping trainers develop lessons on strategies for different types of questions. It also gives a level of detail that allows trainers the advantage of focusing on specific problematic questions, if necessary. Finally, although not the original intent of the observations, these data have provided valuable information for questionnaire design. They identify specific questions where wording can potentially be improved to facilitate an accurate presentation to the respondent.

Results uncovered in this study lend themselves to further exploration. Further research could attempt to pinpoint exactly *why* interviewers do not read specific screens verbatim. We speculate several reasons for the screens discussed above not being read verbatim, but a poll of interviewers who were observed making verbatim errors to discuss why those errors were made could provide potential insight and help better understand reasons behind those errors. However, interviewers are always trained on all verbatim and other errors, and, anecdotally, many report not realizing they had made the verbatim errors at all. This presents a potential challenge in gleaning any useful results from this type of poll.

Acknowledgements

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