What Survey Modes are Most Effective in Eliciting Self-Reports of Criminal or Delinquent Behavior?

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The most important research strategy for testing criminological theories, by far, is the self-report survey, in which respondents (Rs) are invited to report criminal or delinquent acts they have committed (Thornberry and Krohn 2000; Kleck et al. 2006). These tests, however, are meaningful only to the extent that the surveys yield valid measures of those behaviors, which require effective methods for minimizing errors in response to the questions about criminal behaviors.

The most important threat to the validity of self-report measurements is probably social desirability bias, the tendency of Rs to present themselves in a socially desirable light. This causes Rs to understate socially disapproved behaviors like criminal or delinquent acts (and to overstate socially approved behaviors like voting, church attendance, and the like). While false positive responses to questions about disapproved behaviors (i.e., admitting crimes that the R had not in fact committed) do occur, they are far less common than false negatives (denying crimes the R had committed). For example, validity tests of drug use based on urine tests consistently indicate that false positives are rare and greatly outnumbered by false negatives (Harrison 1995). Likewise, in a unique study of self-reports of a wide array of criminal acts, Clark and Tifft (1966) found that false negatives outnumbered false positives by a margin of three to one.

Further, the main source of inaccurate responses to self-report questions is deliberate misreporting rather than recall failure or misunderstanding of questions. In their review of the literature, Tourangeau and Yan (2007, pp. 859, 876) concluded that: "The survey evidence also indicates that misreporting on sensitive topics is a more or less motivated process in which respondents edit the information they report to avoid embarrassing themselves in the presence of an interviewer or to avoid repercussions from third parties." Thus, if false negative responses are overwhelmingly the dominant kind of error in self-report surveys, better methods should yield higher rates of admission of illegal behaviors.

24.1 Survey Modes

There are many features of surveys that influence Rs' willingness to report such behaviors, including the wording of questions or the presence of third parties during interviews, but the focus of this chapter is on the survey modes used, i.e., the modes of communication by which

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questions are conveyed to Rs and by which Rs convey their responses back to the researchers.

The body of evidence concerning the effects of different modes on response error is constantly evolving, as technological changes alter the available and feasible modes of communication. In particular, the increasing availability, smaller size, and lower cost of computers has increased their use in survey work, changing even the ways in which traditional survey modes were applied. Interviewers asking questions over the telephone or in person can now be assisted in their work by computers, reading questions off a computer screen and recording answers on the computer using a keyboard and mouse rather than pencil and paper answer form. Some surveys can now be entirely or partially conducted by computers over the telephone. The development of the Internet has produced a growing body of Web surveys, but little methodological research on the effects of this new mode on response errors and other survey errors has been done.

Some survey modes involve human interviewers asking questions, while others are self-administered by the R. Among those that are self-administered, some involve questions being presented to Rs by a computer, while others employ a paper questionnaire. Among those employing a human interviewer, some involve interviewers conveying their questions in a face-to-face contact, often in the R's home, while others rely on communication via telephone. In modes in which computers pose the questions, they can appear on a computer screen, or prerecorded questions may be played to the R, usually through headphones, thereby eliminating problems due to the R's literacy or vision limitations. The computer that is used may be the R's own home computer (as in most Web surveys) or may be a laptop or similar computer brought to the R by an interviewer. Rs may speak their responses, record them on paper, or record them using a computer's keyboard or mouse. Further, these elements may be combined in various ways, as in surveys in which the interviewer reads the questions but the R records his or her responses on a paper answer form or on a computer.

Because survey modes evolve as rapidly as communication technologies, methodological research has yet to catch up with some of the more recent developments. Thus, we have fewer experimental studies assessing response errors in Web surveys or Interactive Voice Response surveys, to name two of the newer survey modes. Thus, conclusions must often rely on a handful of studies that bear on a specific pair of randomly assigned modes, and are correspondingly tentative. Indeed, many pairs of survey modes have never, to our knowledge, been experimentally compared.

This review covers the following modes:

- *Face-to-face interviewing* (aka personal interviewing) (FTF). A human interviewer in the R's presence asks questions orally, reading from a printed questionnaire, and R answers orally.
- *Face-to-face interviewing with paper answer form* (F-P). A human interviewer in the R's presence asks questions orally, reading from a printed questionnaire, and R privately records answers on a paper form.
- *Telephone interviewing*, typically computer-assisted (Tel). A human interviewer asks questions over the telephone, and the R answers orally.
- *Computer-assisted self-interviewing* (CASI). Research staff provides a computer to the R and give instructions on its use, the R reads questions off a computer screen, and records answers using the computer's keyboard or mouse.
- *Audio computer-assisted self-interviewing* (ACASI). Research staff provides a computer to the R and give instructions on its use, the R listens to recorded questions delivered through earphones, and records answers using the computer's keyboard or mouse.
- *Telephone audio computer-assisted self-interviewing* (TACASI). A computer delivers questions over the telephone (usually after a human interviewer has established rapport and asked nonsensitive questions), and the R provides answers by pressing telephone keypad numbers and/or speaking responses.

- *Paper-and-pencil questionnaire* (aka self-administered questionnaire) (PAP). Paper questionnaires are distributed to Rs by research staff, often in group settings, the Rs read questions, and record answers on paper answer forms or the questionnaire itself.
- *Mail-out/mail-in surveying* (Mail). Paper questionnaires are mailed to Rs, who record answers on paper answer forms or the questionnaire itself, which are mailed back.
- *Web* (aka Internet). Rs are directed to a website with a computerized version of the questionnaire, read questions off a computer monitor (or hear them via headphones or computer speakers), and provide answers using the computer's keyboard or mouse.

This is an extensive but not exhaustive list of survey modes. It is not possible to make meaningful assessments of unique modes, used in only a single experimental study, so comparisons involving unique, mixed or "hybrid" modes were not included in this review.

Furthermore, all of the above mentioned modes are described and discussed in more details through the different chapters of this handbook, while also being compared for their advantages, disadvantages and related costs (see for example Chap. 11 by Albaum and Smith, as well as Chap. 21 by Shine and Dulisse).

24.2 Some Aspects of Modes that May Affect Willingness of Rs to Admit Criminal Acts

Why should variations in survey modes affect whether Rs report criminal or delinquent acts? A number of differences underlying mode variations could be hypothesized to influence responses to sensitive questions.

Sense of privacy. Rs may be more willing to respond honestly to questions about criminal acts if they can be confident that their answers are being provided in a private context in which the answers cannot be linked to them as individuals. For example, providing responses in a group context, where one R's answers will be submitted along with many other Rs' answers, gives Rs a greater sense of privacy because they know that their responses cannot be individually linked with them. This is an advantage enjoyed by PAP surveys in which questionnaires are distributed in classroom and other group settings. In contrast, Rs interviewed face-to-face in their homes know that their identities are known to the researchers, while those interviewed via telephone may suspect the same—a reasonable suspicion given the possibility of deriving names and addresses from telephone numbers using the reverse record checks available via online services like the White Pages. Likewise, Rs may feel greater privacy when they respond to a computer rather than a human, even though they presumably are aware that their computer-recorded responses will later be accessed by human researchers. Conversely, Rs who are interviewed when there are third parties present (e.g. parents present when adolescents are interviewed in their homes) probably feel less privacy than Rs who provide their answers while alone.

Embarrassment of directly speaking responses to interviewers. Directly speaking admissions of criminal acts to a human interviewer, either face-to-face or over the telephone, may cause Rs to feel embarrassed and may thereby discourage admissions. In contrast, recording admissions on a paper form or on a computer avoids the embarrassment of admitting a crime directly to another human being, even if a human asked the question in the first place. This may play a large role in the superiority of self-administered survey modes over interviewer-administered modes in eliciting admissions of socially undesirable behaviors.

Trust in surveyors. Personal contact between the R and an interviewer can help establish the R's trust in the researchers. Rs may be less suspicious of persons willing to "show themselves" to Rs than of faceless strangers who contact them via telephone or mail. On this dimension, face-to-face personal interviews may have an advantage over telephone interviews, mail surveys, or Web surveys, even though they also commonly suffer from the disadvantage of requesting Rs to speak answers to interviewers.

24.3 Scope of the Review

Our review covered all published English-language studies that used random assignment of survey modes and measured reporting of criminal or delinquent behavior (including illegal drug use), published since 1985. Random assignment of modes insures that the effects of mode are not likely to be confounded with other influences on responses, since any other factors that might affect the reporting of criminal behavior (e.g. attributes of the R, of the interviewer, or of the context in which Rs were interviewed) will be uncorrelated with the mode. Within each study, we identified every individual pairing of survey modes that was compared, and each type of criminal behavior to which the comparison was applied. Each paired comparison of modes with regard to a specific type of criminal behavior was treated as an individual finding. There were 326 such pairings of randomly assigned modes for which the frequency of some type of self-reported criminal behavior was noted.

Qualifying studies had to compare some fairly widely used survey modes, since there was no need to summarize the evidence concerning rarely used modes that had been assessed in a single study. Thus, while dozens of mixed or hybrid modes have been used in surveys asking questions about criminal behavior, there is no significant body of evidence to be summarized concerning any one of them.

In order to qualify for the review, studies had to examine behaviors that are criminal when they are committed by adults. Works that examined only status offenses (acts unlawful only for juveniles), attitudes related to deviant behavior, alcohol use, tobacco use, victimization, consequences of illicit drug use (as opposed to drug use itself), and experiences where it was ambiguous as to whether victimization or offending behaviors were being asked about were excluded. Studies that created indices in which legal and illegal behaviors were combined were likewise excluded. Also, studies that examined the use of certain illicit substances were not included in this review because they were not comparable with other studies examining illicit drug use. For instance, a study by Li et al. (2003) compared the use of betel quid by survey mode. Due to the nature of the drug use, this study did not meet this criterion for inclusion.

This review does not cover studies of values, attitudes, or personality traits purportedly related to illegal behavior, legal but disapproved behaviors such as alcohol or cigarette use, or experiences of criminal victimization. It was felt that some of the forces influencing Rs to conceal illegal behaviors are distinct, and do not apply to behaviors or attitudes that are merely socially disapproved. Admitting to behaviors such as excessive drinking may be embarrassing, but confessing to crimes may, at least in the minds of Rs, entail risks of legal punishment, perhaps even imprisonment.

Qualifying studies also had to either report the results of pairwise comparisons or provide prevalence estimates for each illegal behavior by mode such that we could perform difference-of-proportions tests ourselves. Some studies did not report pairwise comparisons but instead conducted only an analysis of variance across modes, which made it impossible to determine the rank order of the modes. Additionally, studies that reported effects for interactions (e.g., mode by privacy effects) were not included unless prevalence estimates were reported by mode alone.

24.4 Study Acquisition Methods

The articles included in this review were located in a search of the following databases: Web of Knowledge, ArticleFirst, Criminal Justice Periodicals Index (CJPI), Cambridge Scientific Abstracts (Subject Area = Social Sciences), National Criminal Justice Reference Service, and WorldCat. These databases covered a wide array of disciplines. In each database, the terms "survey," "methods," "modes," "administration," "interview," "self-report," "questionnaire," "comparison," "sensitive behaviors OR questions OR issues," "illegal OR illicit OR criminal behaviors OR acts," "drug OR substance use," and "violence" were used in the searches. The fields searched, when available in

a given database, were "abstract," "title," "keyword," "subject," "topic," and "first page." Reference lists of retrieved articles were also used to locate other studies which met the review criteria.

24.5 Findings

Our main findings appear in two tables. First, the Appendix table lists, in chronological order of publication, every study we reviewed, and displays each individual finding of those studies. An individual finding is a pairwise comparison of the rate of admission of each particular type of criminal behavior, between two survey modes. Thus, a study that compared a single pair of modes regarding three kinds of criminal behavior would have three findings, while a study that compared two pairs of modes regarding four kinds of criminal behavior would have eight findings. The abbreviations used to denote each survey mode are explained in the endnotes to the table. In total 27 studies reviewed containing a total of 326 distinct findings.

Each entry in the Appendix table provides the study's authors and date of publication, describes the sample of persons surveyed, and states the sample size. It is also noted whether this sample was selected using probability sampling techniques (P) or was a nonprobability sample (NP). The sample size is significant in that in many cases it helps explain why differences between modes were not statistically significant. Each line within the study's entry describes an individual finding, indicating the pair of survey modes that were compared, the illegal behavior that researchers asked about, and summarizes the finding. The last column displays which of the two modes had a higher rate of admissions of the illegal behavior asked about, and the statistical significance of the difference between the rates. The last column displays only an empty pair of parentheses, it indicates that the authors merely reported there was no significant difference between the modes, but did not report which mode had the higher (albeit nonsignificant) admission rate or what significance level was used.

Many of these findings pertain to the reporting of illegal drug use. We separately counted findings pertaining to (1) current or recent use (designated R) and findings pertaining to (2) lifetime use (designated L) as distinct findings, based on the belief that questions pertaining to recent or current use are considerably more sensitive and likely to lead to false denials than questions about lifetime use that might have occurred many years in the past.

This mass of data obviously does not lend itself to any simple interpretation, so Table 24.1 was created to summarize the individual findings shown in the Appendix table so as to make them more comprehensible. The findings were first sorted by the pair of modes compared, and then these pairs were sequenced in accordance with our initial judgments as to the effectiveness of the modes being compared. Thus, Table 24.1 is divided into panels, each of which summarizes the findings concerning a specific pair of survey modes. The panels appear in rough order of the effectiveness of the modes in eliciting admissions of criminal behavior, starting with the less effective modes in the first part of the table and progressing to the generally more effective modes in the later panels.

The first column of Table 24.1 reports the modes compared, presenting first the mode predicted to be more effective, i.e., to yield higher rates of admission of criminal acts. Thus, this column states a prediction concerning which was the putatively better mode, i.e., the mode expected to yield higher admission rates. This was based on our tentative conclusions from an initial reading of the literature, which yielded a provisional ranking of modes, subject to revision if the more systematic counting of findings did not support some of the ranks. This provisional ranking held up fairly well, in that few studies yielded more than one or two significant differences favoring the mode predicted to be worse in eliciting admissions.

Table 24.1 Summary of findings, sorted by mode pairs compared (sequenced from worst to best modes)

Modes compared	Study	Findings	Differences in predicted direction	Tentative conclusion
FTF > Tel	Johnson et al. (1989)	7/0/1 (1)	8 of 8	
	Aquilino (1994)	0/0/7 (5)	5 of 7	
Total		7/0/8 (6)	13 of 15	FTF is better
F-P > FTF	Schober et al. (1992)	5/0/1 (1)	6 of 6	
	Turner et al. (1992)	1/0/1 (5)	6 of 6	
	Aquilino (1994)	1/0/6 (5)	6 of 7	
	Tourangeau et al. (1997)	0/0/10 (?)	?	
	Rogers et al. (1998)	4/0/2 (?)	4+ of 6	
Total		11/0/24 (11+)	22+ of 25	F-P is better
F-P > Tel	Aquilino (1994)	4/0/3 (1)	5 of 7	F-P is better
PAP > F-P	Tourangeau et al. (1997)	0/0/10 (?)	?	No difference
PAP > FTF	Tourangeau et al. (1997)	0/0/10 (?)	?	No difference
CASI > PAP	O'Reilly et al. (1994)	2/0/7 (5)	7 of 9	
	Tourangeau et al. (1997)	0/0/10 (?)	?	
	Beebe et al. (1998)	0/2/2 (1)	1 of 4	
	Wright et al. (1998)	0/0/1 (1)	1 of 1	
	Brenek et al. (2006)	0/0/8 (7)	7 of 8	
	Hamby et al. (2006)	1/1/1 (1)	2 of 3	
Total		3/3/29 (15+)	18+ of 25	CASI may be slightly better
ACASI > PAP	O'Reilly et al. (1994)	0/0/9 (7)	7 of 9	
	Turner et al. (1998)	0/0/5 (5)	5 of 5	
Total		0/0/14 (12)	12 of 14	ACASI is better
CASI > F-P	Tourangeau et al. (1997)	0/0/10 (?)	?	
	Supple et al. (1999)	3/0/2 (2)	5 of 5	
Total		3/0/12	5 of 5	CASI is better
CASI > FTF	Tourangeau and Smith (1996)	1/0/5 (3)	4 of 6	
	Tourangeau et al. (1997)	0/0/10 (?)	?	
Total		1/5/15 (3+)	4 of 6	CASI is slightly better
ACASI > FTF	Tourangeau and Smith (1996)	3/0/3 (3)	6 of 6	
	Newman et al. (2002)	1/0/1 (1)	2 of 2	
Total		4/0/4 (4)	8 of 8	ACASI is better

(continued)

Table 24.1 (continued)

Modes compared	Study	Findings	Differences in predicted direction	Tentative conclusion
ACASI > CASI	O'Reilly et al. (1994)	0/0/9 (2)	2 of 9	
	Tourangeau and Smith (1996)	2/0/4 (4)	6 of 6	
	Couper et al. (2003)	0/0/2 (0)	0 of 2	
Total		2/0/14	8 of 17	ACASI is slightly better
Mail > Tel	Bason (2000)	0/0/4 (1)	1 of 4	Too little information
Web > Tel	Bason (2000)	0/1/3 (1)	1 of 4	Too little information
TACASI > Tel	Bason (2000)	0/1/3 (1)	1 of 4	
	Gribble et al. (2000)	4/0/7 (3)	7 of 11	
	Corkrey and Parkinson (2002)	2/0/7 (6)	8 of 9	
	Turner et al. (2005)	11/0/0 (0)	11 of 11	
Total		17/1/17 (10)	27 of 35	TACASI is better
Web > PAP	Wang et al. (2005)	1/0/4 (4)	5 of 5	
	Lucia et al. (2007)	0/0/6 (2)	2 of 6	
	Van de Looij-Jansen (2008)	1/0/1 (?)	?	
	Eaton et al. (2010)	4/0/0/(0)	4 of 4	
Total		6/0/11 (6)	12 of 17	Web is better
Mail > TACASI	Bason (2000)	0/0/4 (2)	2 of 4	
	Knapp and Kirk (2003)	0/0/1 (1)	1 of 1	
Total		0/0/5 (3)	3 of 5	No difference
Web > Mail	Bason (2000)	0/0/4 (3)	3 of 4	
	McCabe et al. (2002)	0/1/0 (0)	0 of 1	
	Knapp and Kirk (2003)	0/0/1 (1)	1 of 1	
	McCabe (2004)	2/2/12 (4)	6 of 16	
Total		2/3/14 (8)	10 of 22	No difference
Web > TACASI	Bason (2000)	0/0/4 (2)	2 of 4	
	Knapp and Kirk (2003)	0/0/1 (1)	1 of 1	
Total		0/0/5 (3)	3 of 5	No difference

To illustrate how to interpret the table, consider the first panel. The face-to-face mode (FTF) was predicted to be more effective than the telephone mode (Tel). The second column indicates which study is being described. The third column summarizes the number of findings of each possible type: (1) significant and in the predicted direction (i.e. the mode predicted to be better did obtain a higher admission rate), (2) significant and in the opposite direction from that predicted, and (3) not significantly different. The number in parentheses states the number of findings in the predicted direction, among the *non*significant findings. Thus, for the Johnson et al. (1989) study, there were seven findings indicating that the FTF mode was significantly better, as predicted, zero

Telephone/ CATI	< Face-to-Face Interviewing (FTF)	< Face-to-Face Interviewing with paper answer forms (F-P)	< Paper-and-Pencil (PAP)	< Computer-assisted Self-interviewing (CASI)	< Audio computer-assisted self-interviewing (ACASI)	< Telephone audio computer-assisted self-interviewing; (TACASI) Web; Mail[a]

Fig. 24.1 A tentative ranking of survey modes as to their ability to elicit admissions of criminal or delinquent behavior (reading from *left* to *right*, modes go from worst to best)

findings indicating the telephone mode was significantly better, and one finding of no significant difference. The "1" in parenthesis indicates that this one nonsignificant finding was in the predicted direction. It was felt that when cumulating many findings over multiple studies, a consistent pattern of findings in the predicted direction constituted meaningful support for the prediction, even if some of the findings, taken one at a time, were not statistically significant (often due to small sample sizes). Based on this reasoning, the fourth column reports the share of findings that were in the predicted direction, regardless of statistical significance, among those where a direction was reported by the original authors or could otherwise be determined. Some authors reported only that differences were not significant, without reporting the direction of difference or the admission rates. In these cases, a question mark was entered in the table where the number of findings in the predicted direction would be noted.

When summarizing the total number of findings in the predicted direction, across all studies comparing a particular pair of modes, the number of findings in the predicted direction sometimes could not be determined precisely because some authors did not report the direction of nonsignificant differences. Thus, if there were 11 findings with direction reported that were in the predicted direction, plus some others without direction reported, this means there were 11 or more findings in the predicted direction. This would be designated 11+, meaning "11 or more."

The last column reports our tentative conclusion as to which of the two compared survey modes appeared to be more effective. When fewer than 10 comparisons of a given pair of modes had been made in the set of reviewed studies, we concluded that there was too little information to draw even a tentative conclusion. When the findings were evenly or nearly evenly divided as to which mode was more effective, we tentatively concluded that there was no difference.

Finally, Fig. 24.1 visually summarizes the information from Table 24.1, displaying the rank ordering of survey modes as to their effectiveness in eliciting self-reports of criminal or delinquent behavior. As one reads from left to right, the modes shown are increasingly effective. It should be evident from Table 24.1 that many possible pairwise comparisons of modes have never been directly studied, so there often was no direct empirical foundation for saying mode A is better than C. We could, however, apply the transitive principle to those pairwise comparisons that have been studied, to draw conclusions about pairs not directly compared. That is, if some studies showed mode A to be better than mode B, and other studies showed mode B to be better than mode C, we felt justified in concluding that mode A was better than mode C, even though no study had ever directly compared modes A and C.

The body of experimental evidence available to date suggests that conventional telephone interviewing and face-to-face interviewing are the least effective survey modes in getting Rs to admit to unlawful behaviors, while the most effective modes are Web, mail, and TACASI. The latter three modes appear to be about equally effective, or at least, so far, there is too little evidence to convincingly separate them.

24.6 Conclusions

Valid measurement of delinquent and criminal behaviors is certainly crucial to survey research on these topics, but it is not the only consideration in doing good surveys. Good researchers try to reduce total survey error, which includes

Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
Johnson et al. (1989)	P	780	FTF/Tel	Marijuana use, L	FTF, >.05
	U of Kentucky students, 1987		FTF/Tel	Cocaine use, L	FTF, <.01
			FTF/Tel	Tranquilizer use, L	FTF, <.001
			FTF/Tel	Amphetamine use, L	FTF, <.05
			FTF/Tel	Downer use, L	FTF, <.001
			FTF/Tel	Other pill use, L	FTF, <.001
			FTF/Tel	Hallucinogen use, L	FTF, <.01
			FTF/Tel	Heroin use, L	FTF, <.01
Schober et al. (1992)	P	9,308	F-P/FTF	Cocaine use, R	F-P, <.001
	NLSY, 1988		F-P/FTF	Cocaine use, past year	F-P, <.001
			F-P/FTF	Cocaine use, L	F-P, <.001
			F-P/FTF	Marijuana use, R	F-P, <.001
			F-P/FTF	Marijuana use, past year	F-P, <.001
			F-P/FTF	Marijuana use, L	F-P, > .10
Turner et al. (1992)	P	3,284	F-P/FTF	Marijuana use, R	F-P, .039
	NHSDA, 1990(HH residents in 33 US metro areas)		F-P/FTF	Marijuana use, past year	F-P, .18
			F-P/FTF	Marijuana use, L	F-P, >.20
			F-P/FTF	Cocaine use, R	F-P, .081
			F-P/FTF	Cocaine use, past year	F-P, .185
			F-P/FTF	Cocaine use, L	F-P, >.20
Aquilino (1994)	P	1,508	F-P/FTF	Marijuana use, L	F-P, >.10
	HH residents in 37 Largest US SMSAs, 1991		F-P/FTF	Marijuana use, past year	F-P, <.05
			F-P/FTF	Marijuana use, R	F-P, >.10
			F-P/FTF	Cocaine use,L	F-P, <.10
			F-P/FTF	Cocaine use, past year	F-P, >.10
			F-P/FTF	Cocaine use, R	()
			F-P/FTF	Crack use, L	F-P, >.10
		1,499	F-P/Tel	Marijuana use, L	F-P, >.10
			F-P/Tel	Marijuana use, past year	F-P, <.001
			F-P/Tel	Marijuana use, R	F-P, <.05
			F-P/Tel	Cocaine use, L	F-P, <.01

Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			F-P/Tel	Cocaine use, past year	()
			F-P/Tel	Cocaine use, R	()
			F-P/Tel	Crack use, L	F-P, <.05
		1,489	FTF/Tel	Marijuana use, L	FTF, >.10
			FTF/Tel	Marijuana use, past year	FTF, <.10
			FTF/Tel	Marijuana use, R	FTF, >.10
			FTF/Tel	Cocaine use, L	FTF, <.10
			FTF/Tel	Cocaine use, past year	Tel, >.10
			FTF/Tel	Cocaine use, R	()
			FTF/Tel	Crack use, L	FTF, >.10
O'Reilly et al. (1994)	NP	26	ACASI/CASI	Marijuana use, R	ACASI, .58
	Volunteers		ACASI/CASI	Marijuana use, past year	CASI, .24
			ACASI/CASI	Marijuana use, L	CASI, .26
			ACASI/CASI	Cocaine use, R	()
			ACASI/CASI	Cocaine use, past year	CASI, .72
			ACASI/CASI	Cocaine use, L	CASI, .56
			ACASI/CASI	Crack use, R	()
			ACASI/CASI	Crack use, past year	CASI, .44
			ACASI/CASI	Crack use, L	ACASI, .58
		27	ACASI/PAP	Marijuana use, R	ACASI, .12
			ACASI/PAP	Marijuana use, past year	ACASI, .19
			ACASI/PAP	Marijuana use, L	ACASI, .29
			ACASI/PAP	Cocaine use, R	()
			ACASI/PAP	Cocaine use, past year	ACASI, .52
			ACASI/PAP	Cocaine use, L	ACASI, .06
			ACASI/PAP	Crack use, R	()
			ACASI/PAP	Crack use, past year	ACASI, .52
			ACASI/PAP	Crack use, L	ACASI, .12
		25	CASI/PAP	Marijuana use, R	CASI, .22
			CASI/PAP	Marijuana use, past year	CASI, .03
			CASI/PAP	Marijuana use, L	CASI, .06

(continued)

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			CASI/PAP	Cocaine use, R	()
			CASI/PAP	Cocaine use, past year	CASI, .48
			CASI/PAP	Cocaine use, L	CASI, .04
			CASI/PAP	Crack use, R	()
			CASI/PAP	Crack use, past year	CASI, .22
			CASI/PAP	Crack use, L	CASI, .22
Tourangeau and Smith (1996)	P	197	ACASI/FTF	Marijuana use, L	ACASI, <.01
	HH residents in Cook County, Illinois, 1994		ACASI/FTF	Marijuana use, past year	ACASI, <.05
			ACASI/FTF	Marijuana use, R	ACASI, <.10
			ACASI/FTF	Cocaine use,L	ACASI, <.05
			ACASI/FTF	Cocaine use, past year	ACASI, >.10
			ACASI/FTF	Cocaine use, R	ACASI, >.10
		205	ACASI/CASI	Marijuana use, L	ACASI, >.10
			ACASI/CASI	Marijuana use, past year	ACASI, <.05
			ACASI/CASI	Marijuana use, R	ACASI, >.10
			ACASI/CASI	Cocaine use,L	ACASI, <.05
			ACASI/CASI	Cocaine use, past year	ACASI, >.10
			ACASI/CASI	Cocaine use, R	ACASI, >.10
		219	CASI/FTF	Marijuana use, L	CASI, <.05
			CASI/FTF	Marijuana use, past year	FTF, >.10
			CASI/FTF	Marijuana use, R	CASI, >.10
			CASI/FTF	Cocaine use, L	CASI, >.10
			CASI/FTF	Cocaine use, past year	CASI, >.10
			CASI/FTF	Cocaine use, R	FTF, >.10
Tourangeau et al. (1997)	P & NP	1,100	F-P/FTF	Any illegal drug use, L	?, >.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
	Chicago & sample of women who had an abortion, 1993		F-P/FTF	Marijuana use, L	?, >.05
			F-P/FTF	Amphetamine use, L	?, >.05
			F-P/FTF	Barbiturates use, L	?, >.05
			F-P/FTF	Tranquilizer use, L	?, >.05
			F-P/FTF	Psychedelics use, L	?, >.05
			F-P/FTF	Cocaine use, L	?, >.05
			F-P/FTF	Crack use, L	?, >.05
			F-P/FTF	Heroin use, L	?, >.05
			F-P/FTF	Injectable drugs use, L	?, >.05
			PAP/F-P	Any illegal drug use, L	?, >.05
			PAP/F-P	Marijuana use, L	?, >.05
			PAP/F-P	Amphetamine use, L	?, >.05
			PAP/F-P	Barbiturates use, L	?, >.05
			PAP/F-P	Tranquilizer use, L	?, >.05
			PAP/F-P	Psychedelics use, L	?, >.05
			PAP/F-P	Cocaine use, L	?, >.05
			PAP/F-P	Crack use, L	?, >.05
			PAP/F-P	Heroin use, L	?, >.05
			PAP/F-P	Injectable drugs use, L	?, >.05
			CASI/F-P	Any illegal drug use, L	?, >.05
			CASI/F-P	Marijuana use, L	?, >.05
			CASI/F-P	Amphetamine use, L	?, >.05
			CASI/F-P	Barbiturates use, L	?, >.05
			CASI/F-P	Tranquilizer use, L	?, >.05
			CASI/F-P	Psychedelics use, L	?, >.05
			CASI/F-P	Cocaine use,L	?, >.05
			CASI/F-P	Crack use, L	?, >.05
			CASI/F-P	Heroin use, L	?, >.05
			CASI/F-P	Injectable drugs use, L	?, >.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			PAP/FTF	Any illegal drug use, L	?, >.05
			PAP/FTF	Marijuana use, L	?, >.05
			PAP/FTF	Amphetamine use, L	?, >.05
			PAP/FTF	Barbiturates use, L	?, >.05
			PAP/FTF	Tranquilizer use, L	?, >.05
			PAP/FTF	Psychedelics use, L	?, >.05
			PAP/FTF	Cocaine use, L	?, >.05
			PAP/FTF	Crack use, L	?, >.05
			PAP/FTF	Heroin use, L	?, >.05
			PAP/FTF	Injectable drugs use, L	?, >.05
			CASI/FTF	Any illegal drug use, L	?, >.05
			CASI/FTF	Marijuana use, L	?, >.05
			CASI/FTF	Amphetamine use, L	?, >.05
			CASI/FTF	Barbiturates use, L	?, >.05
			CASI/FTF	Tranquilizer use, L	?, >.05
			CASI/FTF	Psychedelics use, L	?, >.05
			CASI/FTF	Crack use, L	?, >.05
			CASI/FTF	Cocaine use, L	?, >.05
			CASI/FTF	Heroin use, L	?, >.05
			CASI/FTF	Injectable drugs use, L	?, >.05
			CASI/PAP	Any illegal drug use, L	?, >.05
			CASI/PAP	Marijuana use, L	?, >.05
			CASI/PAP	Amphetamine use, L	?, >.05
			CASI/PAP	Barbiturates use, L	?, >.05
			CASI/PAP	Tranquilizer use, L	?, >.05
			CASI/PAP	Psychedelics use, L	?, >.05
			CASI/PAP	Cocaine use, L	?, >.05
			CASI/PAP	Crack use, L	?, >.05
			CASI/PAP	Heroin use, L	?, >.05
			CASI/PAP	Injectable drugs use, L	?, >.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
Beebe et al. (1998)	NP	368	CASI/PAP	Marijuana use, past year	PAP, <.05
	US students, 1996		CASI/PAP	LSD/psychedelic use, past year	PAP, >.05
			CASI/PAP	Amphetamine use, past year	PAP, <.05
			CASI/PAP	Cocaine use, past year	CASI, >.05
			CASI/PAP	Damaged property, past year	PAP, <.001
			CASI/PAP	Beat person up, past year	PAP, <.05
			CASI/PAP	Stolen something, past year	PAP, >.05
Rogers et al. (1998)	P	1,877	F-P/FTF	Cocaine use, R	F-P, .01
	NHSDA, 1990		F-P/FTF	Cocaine use, past year	F-P, .025
			F-P/FTF	Cocaine use, L	F-P, .33
			F-P/FTF	Marijuana use, R	F-P, .005
			F-P/FTF	Marijuana use, past year	F-P, .04
			F-P/FTF	Marijuana use, L	F-P, .37
Turner et al. (1998)	P	1,672	ACASI/PAP	Sex with prostitute	ACASI, <.01
	Male residents of US HHs, 1995		ACASI/PAP	Paid for sex	ACASI, <.10
			ACASI/PAP	Street drugs w/ needle	ACASI, <10
			ACASI/PAP	Injected drugs, past year	ACASI, .13
			ACASI/PAP	Daily marijuana use, past year	ACASI, <.10
			ACASI/PAP	Cocaine/crack use, past year	ACASI, >.10
			ACASI/PAP	Marijuana use, L	ACASI, <.10
			ACASI/PAP	Threaten someone, past year	ACASI, <.01
			ACASI/PAP	Physical fight, past year	ACASI, >.10
			ACASI/PAP	Pulled knife/gun, past year	ACASI, <.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
Wright et al. (1998)	P	3,169	CASI/PAP	Illicit drug use	CASI, >.05
	US urban & suburban residents, 1995–1996				
Supple et al. (1999)	P	1,072	CASI/F-P	Marijuana use, L	CASI, >.05
	US urban & suburban residents, 1995-1996		CASI/F-P	Marijuana use, R	CASI, <.05
			CASI/F-P	Marijuana use, >12x ever	CASI, >.05
			CASI/F-P	Illicit drug use, L	CASI, <.05
			CASI/F-P	Illicit drug use, R	CASI, <.05
Bason (2000)	P	365	Mail/Tel	Marijuana use, R	Tel, >.05
	US college students, 2000		Mail/Tel	Cocaine use, R	Mail, >.05
			Mail/Tel	Hallucinogens	Tel, >.05
			Mail/Tel	Designer drugs	Tel, >.05
		276	Web/Tel	Marijuana use, R	Tel, >.05
			Web/Tel	Cocaine use, R	Web, >.05
			Web/Tel	Hallucinogens	Tel, <.005
			Web/Tel	Designer drugs	Tel, >.05
		289	TACASI/Tel	Marijuana use, R	Tel, <.05
			TACASI/Tel	Cocaine use, R	TACASI, >.05
			TACASI/Tel	Hallucinogens	()
			TACASI/Tel	Designer drugs	Tel, >.05
		319	Web/Mail	Marijuana use, R	Web, >.05
			Web/Mail	Cocaine use, R	Web, >.05
			Web/Mail	Hallucinogens	Web, >.05
			Web/Mail	Designer drugs	Mail, >.05
		332	Mail/TACASI	Marijuana use, R	Mail, >.05
			Mail/TACASI	Cocaine use, R	Mail, >.05
			Mail/TACASI	Hallucinogens	TACASI, >.05
			Mail/TACASI	Designer drugs	TACASI, >.05
		243	Web/TACASI	Marijuana use, R	Web, >.05
			Web/TACASI	Cocaine use, R	Web, >.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			Web/TACASI	Hallucinogens	TACASI, >.05
			Web/TACASI	Designer drugs	TACASI, >.05
Gribble et al. (2000)	P	2,343	TACASI/Tel	Crack, past 6 months	TACASI, .026
	Men who have sex w/men in 4 US cities, 1996–1998		TACASI/Tel	Inhalants, past 6 months	TACASI, .004
			TACASI/Tel	Downers, past 6 months	TACASI, .001
			TACASI/Tel	Opiates, past 6 months	TACASI, .039
			TACASI/Tel	Marijuana, past 6 months	Tel, >.10
			TACASI/Tel	Psychedelics, past 6 months	Tel, >.10
			TACASI/Tel	Meth, past 6 months	TACASI, >.10
			TACASI/Tel	Other amphet, past 6 months	Tel, >.10
			TACASI/Tel	Ecstasy, past 6 months	Tel, >.10
			TACASI/Tel	Cocaine, past 6 months	TACASI, >.10
			TACASI/Tel	Party drugs, past 6 months	TACASI, .17
			TACASI/Tel	Rcvd drugs/money for sex, R	TACASI, .009
			TACASI/Tel	Gave drugs/money for sex, R	TACASI, .018
Corkrey & Parkinson (2002)	P	406	TACASI/Tel	Marijuana use, L	TACASI, >.10
	Australia		TACASI/Tel	Marijuana use, past year	TACASI, >.10
	residents, 2000		TACASI/Tel	Monthly marijuana use	TACASI, >.10
			TACASI/Tel	Amphetamine use, L	Tel, >.10
			TACASI/Tel	Amphetamine use, past year	TACASI, <.05
			TACASI/Tel	Monthly amphetamine use	TACASI, <.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			TACASI/Tel	Heroin use, L	TACASI, >.10
			TACASI/Tel	Heroin use, past year	TACASI, >.10
			TACASI/Tel	Monthly heroin use	TACASI, >.10
McCabe et al. (2002)	P	3,567	Web/Mail	Marijuana use, R	Mail, <.0005
	US college students, 2001				
Newman et al. (2002)	NP	1,417	ACASI/FTF	Marijuana use, R	ACASI, .731
	Syearinge prog participants in 4 U.S. cities, 1997–1998		ACASI/FTF	Non-Rx methadone use, R	ACASI, .004
Couper et al. (2003)	NP	195	ACASI/CASI	Drive under infl, past year	CASI, >.05
	Convenience sample (newspaper ads, flyers)		ACASI/CASI	Marijuana use, L	CASI, >.05
			ACASI/CASI	Cocaine use,L	CASI, >.05
Knapp & Kirk (2003)	NP	231	Web/Mail	Marijuana use, L	Web, >.10
	US college students, 1999		Web/Mail	Been in jail, L	Mail, .07
			Web/Mail	Used CC w/o permission	Web, >.10
			Web/Mail	Accepted money for sex	Mail, >.10
		295	Mail/TACASI	Marijuana use, L	Mail, >.10
			Mail/TACASI	Been in jail, L	Mail, .10
			Mail/TACASI	Used CC w/o permission	Mail, >.10
			Mail/TACASI	Accepted money for sex	Mail, >.10
		178	Web/TACASI	Marijuana use, L	Web, >.10
			Web/TACASI	Been in jail, L	TACASI, .46
			Web/TACASI	Used CC w/o permission	Web, >.10
			Web/TACASI	Accepted money for sex	TACASI, >.10
McCabe (2004)	P	3,606	Web/Mail	Marijuana use, L	Mail, <.05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
	US college students, 2001		Web/Mail	Marijuana use, past year	Mail, >.10
			Web/Mail	Ecstasy use, L	Web, <.05
			Web/Mail	Ecstasy use, past year	Web, >.10
			Web/Mail	Narcotics use, L	Mail, >.10
			Web/Mail	Narcotics use, past year	Mail, >.10
			Web/Mail	LSD use, L	Mail, >.10
			Web/Mail	LSD use, past year	Mail, >.10
			Web/Mail	Psychedelics, L	Web, >.10
			Web/Mail	Psychedelics, past year	Mail, >.10
			Web/Mail	Inhalant use, L	Web, >.10
			Web/Mail	Inhalant use, past year	Mail, >.10
			Web/Mail	Cocaine use, L	Web, <.001
			Web/Mail	Cocaine use, past year	Web, >.10
			Web/Mail	Amphetamines, L	Mail, <.05
			Web/Mail	Amphetamines, past year	Mail, <.10
Turner et al. (2005)	P	2,228	TACASI/Tel	Marijuana use, R	TACASI, <.001
	USA & Baltimore, 1999–2000		TACASI/Tel	Marijuana use, past year	TACASI, <.001
			TACASI/Tel	Marijuana use, past 3 years	TACASI, <.001
			TACASI/Tel	Marijuana use, L	TACASI, <.05
			TACASI/Tel	Cocaine use, R	TACASI, <.05
			TACASI/Tel	Cocaine use, past year	TACASI, <.05
			TACASI/Tel	Cocaine use, past 3 years	TACASI, <.001
			TACASI/Tel	Cocaine use, L	TACASI, <.05
			TACASI/Tel	Drug injection use, past year	TACASI, <.01
			TACASI/Tel	Drug injection use, past 5 years	TACASI, <.01

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			TACASI/Tel	Drug injection use, L	TACASI, <.05
Wang et al. (2005)	P	1,918	Web/PAP	Ecstasy use	Web, >.05
	Students in Taipei, 2003		Web/PAP	Ketamine use	Web, >.05
			Web/PAP	Marijuana use	Web, >.05
			Web/PAP	Amphetamine use	Web, <.05
			Web/PAP	Illicit drug use, L	Web, >.05
Brenek et al. (2006)	NP	4,506	CASI/PAP	Drunk driving, R	CASI, <.05
	High school students in 8 states, 2004		CASI/PAP	Carried a gun, R	CASI, >.05
			CASI/PAP	Weapon carrying, R	CASI, >.05
			CASI/PAP	Marijuana use, L	CASI, >.05
			CASI/PAP	Marijuana use, before 13	CASI, >.05
			CASI/PAP	Marijuana use, R	CASI, >.05
			CASI/PAP	Cocaine use, L	CASI, >.05
			CASI/PAP	Inhalant use, L	CASI, >.05
			CASI/PAP	Meth use, L	CASI, >.05
			CASI/PAP	Ecstacy use, L	CASI, >.05
			CASI/PAP	Steroid use, L	PAP, >.05
Hamby et al. (2006)	NP	160	CASI/PAP	Physical assault perp.	CASI, <.05
	US college students		CASI/PAP	Sexual coercion perp.	PAP, <.01
			CASI/PAP	Injury perp.	CASI, <.10
Lucia et al. (2007)	NP	1,203	Web/PAP	Marijuana use, L	PAP, >.05
	Students in Lausanne, Switzerland, 2004		Web/PAP	Heroin, L	Web, >.05
			Web/PAP	Cocaine, L	PAP, >.05
			Web/PAP	Ecstasy, L	PAP, >.05
			Web/PAP	Hallucinogens	PAP, >.05
			Web/PAP	Amphetamines	Web, >05

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			Web/PAP	Driving w/o license	Web, <.01
			Web/PAP	Shoplifting	Web, >.05
			Web/PAP	Breaking into car	Web, >.05
			Web/PAP	Theft at school	Web, >.05
			Web/PAP	Theft at home	Web, <.05
			Web/PAP	Vehicle theft	PAP, >.05
			Web/PAP	Assault	PAP, >.05
			Web/PAP	Threat w/weapon	PAP, >.05
			Web/PAP	Racket	PAP, >.05
			Web/PAP	Robbery	()
			Web/PAP	Arson	PAP, >.05
			Web/PAP	Selling soft drugs	PAP, <.05
			Web/PAP	Selling hard drugs	PAP, >.05
			Web/PAP	Graffiti	PAP, >.05
			Web/PAP	Vandalism	PAP, <.01
			Web/PAP	Theft from person	PAP, >.05
van de Looij-Jansen and de Wilde (2008)	NP	531	Web/PAP	Vandal & steal, past year	?, >.05
	Schools in Rotterdam, Netherlands, 2005		Web/PAP	Carrying a weapon	W, <.05
			Web/PAP	Marijuana use, R	?, >.05
Eaton et al. (2010)	NP	5,227	Web/PAP	Drunk driving	Web, .01
	85 schools in 15 states, 2008		Web/PAP	Carried a gun	Web, .02
			Web/PAP	Weapon carrying	Web, .01
			Web/PAP	Weapon carrying @ school	Web, .005
			Web/PAP	Marijuana use, L	Web, .12
			Web/PAP	Marijuana use, before 13	Web, .07
			Web/PAP	Marijuana use, R	Web, .02
			Web/PAP	Marijuana use @ school	Web, .005
			Web/PAP	Cocaine use, L	Web, .145
			Web/PAP	Cocaine use, R	Web, .0175

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Study	Sample description	Sample size	Modes compared	Illegal behavior	Better Mode, significance
			Web/PAP	Inhalant use, L	Web, .085
			Web/PAP	Heroin use, L	Web, .145
			Web/PAP	Meth use, L	Web, .12
			Web/PAP	Ecstacy use, L	Web, .02
			Web/PAP	Steroid use, L	Web, .155
			Web/PAP	Injection drug use, L	Web, .125

Abbreviations
FTF Face-to-face interview (includes CAPI)—interviewer speaks questions, respondent speaks responses
F-P Face-to-face interview—interviewer speaks questions, respondent records responses on paper or Computer
PAP Paper and pencil self-administered questionnaire
Mail Respondent receives and returns survey by mail
Tel Telephone interview (e.g. CATI)
CASI Computer-assisted self-interviewing
ACASI Audio computer-assisted self-interviewing
TACASI Telephone audio computer-assisted self-interviewing (includes IVR—interactive voice response)
W Web or Internet mode
L Lifetime use
R Use in past month (recent)
() = No difference between modes
? = Not clear which mode elicited more responses
P Probability sample
NP Nonprobability sample
HH Household
NHSDA National Household Survey of Drug Abuse
NLSY National Longitudinal Survey of Youth

coverage error, sampling error, and nonresponse as well as measurement or response error. If these sources of error were independent of one another, each could be addressed separately without regard to the others, but unfortunately they are sometimes interrelated. Using a survey mode that yields more valid responses to self-report questions about deviant behavior might also be afflicted by worse nonresponse (a lower percent of those selected for the sample agreeing to participate), producing more potential for sample bias. Or, a mode effective in eliciting admissions of unlawful conduct, such as Internet surveying, may only be feasible with the portion of the sample possessing the necessary technology, i.e., a computer and home Internet access. This can (if not corrected in various expensive ways) result in coverage error—i.e., some segment of the target population is not covered by the sample frame. Specifically, coverage may be poor for lower income persons—the very individuals most likely to commit common law crimes (also see Mesch Chap. 18, and Manzo and Burke Chap. 19 for the availability and characteristics of those participating in e-mail and web-based surveys). Some modes that are relatively effective in reducing response error for questions on sensitive topics may not be feasible except in circumstances that preclude use of probability sampling, as is the case with nearly all of the group-administered pencil-and-paper surveys of school samples that are so common in criminology. And of course, some effective modes may simply be more expensive than a researcher can afford. In sum, our exploratory findings pertain to one important dimension of surveys on crime, but not the only one. Scholars need to consider these findings in conjunction with a concern for the other sources of survey error.

We also want to stress the tentative nature of our rankings of survey modes. Because there have been so few direct comparisons of modes, relative to all the possible pairwise comparisons that might be made, the exact ranking of modes is based on a modest empirical foundation, and future research may well necessitate revision. Even those pairs of modes that have been directly compared have, in some cases, only been assessed in one or two studies, or only in connection with one or two offenses. Finally, most findings in this area pertain to illegal drug use, and it is possible they do not apply to other kinds of criminal behavior. Future research in this area needs to be directed at a wider array of criminal acts, to provide a broader base for judging the effectiveness of survey modes in eliciting reports of these behaviors.

24.7

Appendix Table A Individual findings of experimental studies of the effect of survey mode on the reporting of illegal behaviors (in chronological order)

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