Journal of Rural Social Sciences

12-31-2016

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Carla Koons Trentelman
Weber State University, carlatrentelman@weber.edu

Jessica Irwin
Utah State Department of Human Services

Kyle A. Petersen
Davis School District

Nallely Ruiz
Ogden-Weber Tech College

Caitlin S. Szalay
Jordan School District

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Recommended Citation

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CARLA KOONS TRENTELMAN
WEBER STATE UNIVERSITY

JESSICA IRWIN
UTAH STATE DEPARTMENT OF HUMAN SERVICES

KYLE A. PETERSEN
DAVIS SCHOOL DISTRICT

NALLELY RUIZ
OGDEN-WEBER TECH COLLEGE

CAITLIN S. SZALAY
JORDAN SCHOOL DISTRICT

ABSTRACT

Researchers have struggled with decreases in response rates in surveys using traditional methods. Drop-off/pick-up (DOPU) surveys are an alternative that performs well in some research situations. For studies in small or compact geographic areas, DOPU has achieved higher response rates than mail surveys, although typically at higher costs due to labor and transportation. Other benefits include increased local awareness of research projects and improved outcomes for complex survey projects. Social exchange theory would explain the success of DOPU as due to the method's personal interaction. Many researchers are unfamiliar with DOPU and prior instructive works are now dated. In an attempt to provide survey researchers another methodological tool, we review prior instructive works, comparative research on the method, and studies using DOPU for data collection. Applying social exchange theory to a synthesis of these prior works, we propose recommended practices for using DOPU and illustrate these with our own experiences.

Low survey response rates and the corresponding potential for nonresponse error have presented increasing challenges for social researchers in the United States (Brick and Williams 2013; Dillman, Smyth, and Christian 2014). One often

overlooked alternative is the drop-off/pick-up method, where surveyors interact face-to-face with potential respondents when hand-delivering survey questionnaires to individual households and returning later for retrieval.

The drop-off/pick-up (DOPU) method has been touted as having several advantages compared with mailed questionnaires and phone interviews. Most researchers who use the method report doing so for the higher response rates produced by the personal interaction (e.g., Allred and Ross-Davis 2011; Riley and Kiger 2002). Additionally, researchers have used DOPU methods to reduce noncoverage error (Steele et al. 2001), to assist in administering intricate survey designs (Pedersen et al. 2011), to implement complex eligibility criteria for respondents (Allred and Ross-Davis 2011; Waight and Bath 2014), and to engage potential respondents with a topic in which they may have minimal interest (Trentelman 2011). It has also proven useful in research contexts where other methods cannot work (Clark and Finley 2007). Social exchange theory can explain many of these benefits (Cropanzano and Mitchell 2005; Dillman et al. 2014), and it can also provide guidance for recommended practices for the method.

Despite these advantages, many survey researchers are unfamiliar with DOPU or do not know how to utilize it. Few prior works are instructive for the practitioner who is interested but unexperienced with the method and those providing guidance are dated (e.g., Riley and Kiger 2002; Steele et al. 2001). Also dated are the works on the methodological experimentation conducted on DOPU methods (e.g., Melevin et al. 1999; Walker 1976). In this paper we update the discussion on DOPU, with the hope of providing survey researchers another methodological tool. The contributions we attempt to make to the literature are several fold. Beyond providing a general introduction to this survey technique, we synthesize direction from these prior works, ideas gleaned from research using DOPU methods, and our own experience to present the steps for conducting DOPU surveys. Utilizing social exchange theory, we suggest recommended practices that include the mechanics and details of the process.

We illustrate these suggestions with experiences from a survey conducted in 2007. DOPU surveys rely on a "significant team effort" (Steele et al. 2001:248), yet none of the prior literature providing instruction on DOPU has explicitly included the perspectives of research team members on the hands-on aspects of the methodology. We use our case illustratively because it allows research team members to be included in the story telling. Additionally, because the details of preparing the research team have also been neglected in prior works, we include

suggestions for training surveyors for DOPU work. We believe this approach will be helpful for those learning about this survey method.

BACKGROUND

This survey technique has been in use since at least the 1970s, but "drop-off/pick-up" surveys, also known as "drop and collect" surveys in some work conducted outside the United States (Devine-Wright 2011; Ibeha, Brocka, and Zhou 2004; Liang and Chikritzhs 2011; Said et al. 2003), are referenced in research literature infrequently. Since DOPU consists of hand-delivering survey instruments to households and then returning to collect the completed questionnaires, it is typically seen as best suited for surveys of smaller geographic areas. As such, DOPU has been found advantageous for surveys at the community or county level, particularly for small and densely-settled areas (Steele et al. 2001). The method has been used, for example, to study community dynamics, especially in rural areas (Brehm, Eisenhauer, and Krannich 2006), attitudes and behavior toward natural resources (Allred and Ross-Davis 2010), and place attachment (Devine-Wright 2011), as well as in surveys on alcohol and other drug use (Liang and Chikritzhs 2011). It has been used for neighborhood-level surveys in urban areas, for example examining residents' perspectives of backyard birds in Chicago (Belaire, Whelan, and Minor 2014). The method has also been used in marketing and marketing management research (Brown 1987; Ibeha et al. 2004). Historically, Gallup (1971) used a similar approach in a "referendum" for public opinion on several public issues.

Theoretical Framework

Research methodology scholars argue the tenants of social exchange theory work well as a framework for survey design and implementation (e.g., see Dillman et al. 2014:21–55). This framework focuses on three key elements: the survey should provide social rewards, minimize or compensate for social costs, and develop and then draw on trust between researcher and research participant. Survey design can encourage respondents to complete the questionnaire by providing rewards such as it feeling important for respondents to help with the research, giving them a limited opportunity to be involved, and making the process interesting to undertake; by decreasing social costs of participation, for example reducing length and complexity while increasing convenience; and by building trust through providing evidence of legitimacy and authenticity, reassurances of confidentiality and data protection, and by communicating professionally. If this is done right, it

can lead to respondents feeling a sense of responsibility to participate based on an obligation to the researcher and/or society (Cropanzano and Mitchell 2005; Dillman et al. 2014).

Social exchange theory and drop-off/pick-up surveys. Drop-off/pick-up surveys capitalize on this social exchange framework, with personal contact with the respondent increasing the likelihood of response partially by signifying the importance and legitimacy of the research. Although survey and questionnaire design are still critical, DOPU allows the surveyor to interact with and establish (even if only briefly) a relationship with the participant at the door before the participant has seen the questionnaire and other survey materials.

Questionnaires are hand-delivered to the sampled households, with the individual respondent selected from household residents using a random sampling technique. If the selected person is not available, the surveyor attempts to find out when he or she will be home and visits then, rather than leaving the questionnaire with a family member. When the selected individual is available, working from a script the surveyor explains the survey, solicits his or her participation, and arranges to pick up the completed questionnaire, noting that it can be filled out at the respondent's convenience before then. The respondent is given the questionnaire, an envelope for the completed instrument that can be sealed for confidentiality, and a plastic "doorknob" bag, provided so the completed questionnaire can be left hanging on the respondent's door to be retrieved without further contact.

This interaction allows the surveyor, assisted by the DOPU script, to increase the benefits of response and feelings of reciprocity by expressing appreciation, personally requesting a potential respondent's input, and framing participation as something that matters. The surveyor also points out the ways that costs have been minimized: respondents can complete the questionnaire at their leisure; they can leave it hanging on their doorknob in the provided plastic bag and not be bothered again. Additionally, this personal interaction provides numerous opportunities for increasing trust – the surveyor speaks directly to the potential respondent to explain the survey and answer questions face-to-face, sponsorship by a legitimate organization (e.g., a university) can be featured on the surveyor's name tag and in the script, and the script can be written to avoid language that could make the individual uncomfortable.

Most of these things could be expressed in a cover letter in a mail or email survey, but a potential respondent may not bother reading it. The script both informs and provides these connections in a short, verbal introduction to the task

the sampled individual is being asked to accept. This interaction provides an opportunity to convince hesitant respondents of the importance of their involvement. The script can also anticipate and address potential reservations, assisting in making refusal more difficult than simply tossing out a mailed questionnaire or hanging up the phone on an anonymous interviewer's voice (Riley and Kiger 2002; Steele et al. 2001). Tests of DOPU methods have provided evidence of this. For example, researchers have found that questionnaires left without personal contact with the potential respondent have yielded lower response rates, besides taking more effort to retrieve (Walker 1976; see also Melevin et al. 1999).

The "pick-up" aspect of the technique adds to the dynamic as well: "The knowledge that someone will be returning with the stated intention of picking up the completed form places subtle but sufficient psychological pressure on prospective respondents" (Brown 1987:19; see also Walker 1976). Since people have an internal need to be consistent, once a potential respondent has agreed to complete the questionnaire, they are more likely to follow through than to shirk what has now become a responsibility (Dillman et al. 2014).

Simply hand-delivering a questionnaire to be mailed back rather than picked up by a surveyor has had mixed findings (c.f., Melevin et al. 1999; Walsh and Ramsey 2003). The mail-back approach cuts out additional potential for personal contact, particularly with selected sample members who are slow to follow through with questionnaire completion.

Drop-Off/Pick-Up Surveys as Compared to Other Survey Methods

Studies using DOPU surveys report several different outcome measures (Steele et al. 2001). The contact rate considers the proportion of eligible households that were successfully contacted; the cooperation rate is the proportion of those contacted who complete the questionnaire. The percentage of participants who completed the questionnaire after agreeing to participate is the completion rate. The most conservative and widely accepted outcome measure is the response rate, the proportion of all eligible households where a questionnaire was completed, comparable to response rates reported for other survey modalities (for a more detailed description, see Steele et al. 2001:244–45; see also AAPOR, 2011). The American Association for Public Opinion Research (AAPOR) asserts that the refusal rate, that is, the proportion of all potentially eligible households in which a respondent refuses to participate, should also be considered (AAPOR 2011). AAPOR argues that no single number or measure can accurately demonstrate the quality of a survey, thus all these elements should be evaluated and reported.

DOPU response rates. The reason for using DOPU cited most frequently is the likelihood of increased response rates due to the face-to-face interaction with potential respondents. Many have achieved impressive response rates. Riley and Kiger (2002) reported rates of 80 to 83 percent in three surveys conducted in Utah in the 1980s and 1990s. Smith, Krannich, and Hunter (2001) utilized DOPU for a longitudinal study: surveying four western, rural communities each at four points in time from 1982 through 1995, the response rates across cities and times ranged from 71.5 to 88.1 percent. In surveying three rural communities in the U.S. West in the early 2000s, Brehm et al. (2006) reported response rates of 81 to 85 percent. Pedersen et al. (2011) obtained a response rate of 70 percent in a western state; Waight and Bath (2014) reported a 72 percent response rate in a study conducted in Newfoundland. Not all researchers using DOPU report response rates, but evidence of the usefulness of the social exchange dynamics woven into DOPU techniques can be seen in the outcomes they do report. For example, in the two study areas of Campbell, Koontz, and Bonnell's (2011)survey, 90 and 95 percent of those who received questionnaires completed them.

Others were not as successful as these. While many researchers do not include much methodological detail, we can make observations about a few studies based on their descriptions of their survey design. Occasionally, structural problems created difficulties for implementing those parts of the survey that draw on social exchange dynamics. For example, Hall and Slothower (2009) attempted to conduct a census of the 250 homes in their study area, however rental homes were excluded from the survey and gated communities presented a barrier to participation, leaving researchers with only 130 deliverable questionnaires. Although only 10 percent of these sampled individuals refused to participate, the final response rate was 59 percent, in large part due to the structural challenges.

Some studies used survey designs that shortchanged the interaction useful for a higher DOPU response. For example, Stough-Hunter, Lekies, and Donnermeyer (2014) simply surveyed the sampled households where residents were home rather than making multiple attempts to find someone at home, and researchers achieved only a 52.9 percent response rate. However, the strength of the social exchange-rich techniques of DOPU shows in their completion rate: of those who received questionnaires, 98 percent completed them.

Westphal et al. (2014) added DOPU in an attempt to improve outcomes after a mail protocol for their survey yielded a response rate of only 5.7 percent. However, the design of the DOPU approach described in their research report did not appear to adequately draw on social exchange dynamics that can lead to

increased responses. All attempts were made before 4:00 P.M., and if surveyors were unable to individually contact potential respondents on their first attempt, they left a survey questionnaire with a message requesting completion hanging from the doorknob or other visible place on the home. Their approach, from first attempt to final pick-up, was completed within three days total, which left the researchers with a contact rate of only 45.6 percent. Additionally, the script did not effectively utilize social exchange elements: three lines long, it gave little information about the survey and provided none of the elements of social exchange that could improve responses. There was no meaningful interaction (Westphal et al. 2014:113). This DOPU survey had a refusal rate of just 10 percent, yet the overall response rate from DOPU methods was only 15.8 percent.

These examples suggest that, while structural barriers may create challenges, for DOPU to be most effective at increasing response rates, the survey design should intentionally include those elements of social exchange that encourage participation and follow-through.

Empirical comparisons to mail or phone surveys. In a study testing DOPU against a mail survey, Allred and Ross-Davis (2011) found DOPU yielded a response rate of 71 percent as compared with 50 percent for the mail survey (see also Maclennan, Langley, and Kypri 2011). Similarly, Ibeha et al. (2004) found the DOPU method achieved significantly higher response rates than mailed questionnaires among organizational respondents (see also Lovelock et al. 1976). Maclennan et al. (2011) suggest that in situations where a postal survey gets only a moderate response, adding DOPU may help reduce risk for nonresponse bias due to the extra percentage gain in response rate, as Westphal et al. (2014) did.

Drop-off/pick-up techniques can boost response rates for some surveys that would be difficult to administer through the mail or over the phone, for example surveys with longer or more complex questionnaires, or those investigating a topic not particularly interesting to potential respondents (Lovelock et al. 1976). For example, Pedersen et al. (2011) used DOPU for a complex survey design used to study types of family work and marital well-being. To be eligible for inclusion, households had to be headed by a couple currently living with at least one dependent child under 18-years-old, with both partners employed in the paid labor force. Both partners had to agree to complete the questionnaire. Despite the protocol's complexities, Pedersen et al. achieved a final response rate of 70 percent. Personal contact with potential respondents allows flexibility in explaining and answering questions about the survey (Stough-Hunter et al. 2014; Walker 1976). This contact also allows the surveyor to determine whether someone meeting

particular inclusion criteria lives in the household (e.g., a land manager of an agriculture operation, Campbell et al. 2011; an ATV user, Waight and Bath 2014). This can simplify the process of finding an adequate sampling frame.

Costs. A primary concern with DOPU as compared to mail or phone surveys is cost. While research comparing DOPU to mail surveys in the 1970s found the costs comparable (Lovelock et al. 1976; Walker 1976), more recent work shows that, due to labor and transportation costs, DOPU is now more expensive than mail surveys. Both Allred and Ross-Davis (2011) and Maclennan et al. (2011) found their costs for DOPU nearly doubled those for a mail survey. Notably though, Allred and Ross-Davis had a small sample for the DOPU portion of their study (125 households); a larger number of households in a compact area may have cost less per household due to more efficient use of labor. However, as Walker (1976) observed, if the sample is not geographically clustered, costs can rise quickly. On the other hand, since most of the cost for DOPU is for labor, Stover and Stone advocate this method as inexpensive for students "or others with exceedingly low budgets" (1974:286) who are willing to provide their own labor. The lead researcher for our project would confirm this is still the case.

Additional limitations compared to mail or phone surveys. DOPU methods are not typically appropriate for studies of larger geographic areas (e.g., statewide or larger scale surveys) because of the cost and time involved in traveling large distances to locate and contact sample households (Riley and Kiger 2002; Steele et al. 2001). Lovelock et al. (1976) counter that if each worker's area is compact, it matters less how compact the full study area is. For example, Jackson-Smith et al. (2016) conducted a large-scale survey project (more than 4,000 housing units) using DOPU methods in 2014. The survey was administered in 12 cities within three counties, and within the cities, the sampled households were clustered in 23 separate neighborhoods, creating compact questionnaire delivery areas. However, this study experienced some noncoverage problems, that is, error resulting from the exclusion of households from the population to be sampled, that would not be an issue in a mail survey. Particularly in more urban neighborhoods, physical access to residences was not available in larger, multi-unit dwellings, both in apartment complexes for lower-income residents and in wealthier neighborhood multi-unit condominiums, apartment complexes, and gated neighborhoods (see also Hall and Slothower 2009). Jackson-Smith et al. (2016) augmented their DOPU design with mailed questionnaires to compensate for the noncoverage. Another potential noncoverage issue is that high crime areas may not be ideal for DOPU, as residents

may be less willing to open their doors to strangers and there may be safety concerns for surveyors (e.g., Lovelock et al. 1976).

Conversely, DOPU methods can reduce noncoverage error due to poor sampling frames (Steele et al. 2001). DOPU surveys are somewhat unique in allowing for geographic sampling when there is no reliable sampling frame, called "visual enumeration," since surveyors are "on the ground" in the neighborhoods included in the survey (see Smith et al. 2001; Steele et al. 2001). This tactic can be used alone or in combination with a sampling frame needing augmentation (see Steele et al. 2001; Melevin et al. 1999).

Additional benefits compared to mail or phone surveys. DOPU allows surveyors to observe first-hand the local conditions, landscapes, and residents, giving researchers additional insights and data not accessible by phone or mail surveys (Steele et al. 2001; Walker 1976). Steele et al. argue that in deciding survey design, these opportunities to gain insights about community context might "weigh as significantly as considerations of survey error and costs" (2001:248). Described as the "ideal survey method in cases where the researcher wants to increase respondent-researcher interaction," DOPU can help raise the local profile of a research project (Allred and Ross-Davis 2011:316). It can also provide insight about attitudes toward the survey as well as reasons for nonparticipation (Lovelock et al. 1976).

DOPU can generate data faster than mail surveys, since there is no wait for waves of completed questionnaires to be returned initially and after reminders have been sent (Brown 1987; Steele et al. 2001). Clark and Finley (2007) argued DOPU is useful in contexts where other methods simply do not work, for example in areas of the developing world, where infrastructure conditions create barriers for telephone or mail surveys.

Face-to-face interviews. The comparisons with face-to-face interviews are few and fairly dated. Comparing a DOPU approach with face-to-face interviews, Riley and Kiger (2002) describe DOPU as achieving similarly high response rates at a lower cost (see also Stover and Stone 1974). DOPU reduces the likelihood of participants giving biased, socially desirable responses since the respondent can complete the questionnaire in private (Walker 1976). There is also less opportunity for bias to be introduced by researchers with DOPU than with interviews (Stover and Stone 1974). The benefits from personal interaction with respondents are similar to those seen with interviews, and DOPU provides more safety for surveyors since they do not have to enter participants' homes. Stover and Stone (1974) also noted that some respondents are more likely to participate given the opportunity to complete a

questionnaire at their leisure, rather than needing to take the time to be interviewed while the researcher is at the door.

RECCOMENDED PRACTICES AND ILLUSTRATIONS FROM THE FIELD

Social exchange theory suggests that surveys designed to apply the theory's principles are likely to be more successful. We now present recommended practices for drop-off/pick-up survey methodology, synthesizing social exchange principles (Cropanzano and Mitchell 2005; Dillman et al. 2014), work that has focused on how best to improve response rates (Dillman et al. 2014; Massey and Tourangeau 2013), suggestions from prior instructive works on DOPU (Riley and Kiger 2002; Steele et al. 2001), and practices used in prior DOPU studies achieving higher response rates (Allred and Ross-Davis 2011).

To provide illustrations, we draw from our own experience, not to suggest that our survey design or implementation was flawless – indeed we point out problems we encountered – but to provide concrete examples of the process for those who are unfamiliar with how to utilize this methodology. As noted earlier, we use our case illustratively in part to include research team members in the story telling. We coauthors, five of the seven team members from this study, include some of our experiences and perspectives as team members, in our own words, to give readers more understanding of the hands-on aspects of this work. After a brief introduction to our case, we present guidelines for recommended DOPU practices.

Our Study

In 2007, we administered a drop-off/pick-up survey to research sense of place with Great Salt Lake (GSL), Utah. The study area fell within two counties, and within two miles of the lake. As suggested by Lovelock et al. (1976), much of our motivation for using DOPU came from the concern that many residents would not find our research topic particularly interesting. The local natural resource-related topic we were studying was important for numerous reasons, and obtaining a satisfactory response rate seemed more likely if we could explain the importance of hearing people's input on the topic, something DOPU could facilitate.

Outcomes. In our case, using DOPU worked well. Out of the 511 households in our sample, of which 455 were eligible for the survey, we obtained 381 completed questionnaires. The combined response rate was 83.7 percent (see Table 1), and the total refusal rate, 11.4 percent. Besides 41 invalid or vacant addresses, 15 households were ineligible, which included respondents who were unable to participate (language problems, ill/incapacitated, on vacation, etc.) and ineligible

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for other reasons (e.g., while moving out, moved in from outside the area less than one month prior). These 56 addresses account for the difference between the number of sampled addresses and the eligible sample. Due to oversampling when drawing the sample, the goal of contacting at least 225 eligible households in each county was met without replacing cases.

TABLE 1.   SUMMARY OF SAMPLE SIZE AND RESPONSE RATES FOR DOPU SURVEY CONDUCTED IN NORTHERN UTAH, 2007.

COUNTY	TOTAL SAMPLED	ELIGIBLE SAMPLE	COMPLETED SURVEYS	RESPONSE RATE	TOTAL REFUSED	REFUSAL RATE
Weber..	259	230	199	86.5%	23	10.0%
Davis ..	252	225	182	80.9%	29	12.9%
Total...	511	455	381	83.7%	52	11.4%

Our contact rate was 95.6 percent (see Table 2). Of those contacted, the 381 completed surveys we obtained gave us a cooperation rate of 87.6 percent. The designated respondent agreed to complete the survey at 395 households and 96.4 percent of them completed the survey. We had picked up all but five delivered questionnaires when we completed our time in the field. A postage-paid envelope was left at each of these five households with a request to mail the completed questionnaire when possible; three participants complied.

TABLE 2.   OTHER RATES USED FOR MEASURING THE SUCCESS OF DROP-OFF/PICK-UP SURVEYS FOR DOPU SURVEY CONDUCTED IN NORTHERN UTAH, 2007.

COUNTY	NONCONTACT NONRESPONSE	TOTAL CONTACTED	CONTACT RATE	COOPERATION RATE	COMPLETION RATE
Weber..	7	223	97.0%	89.2%	94.3%
Davis ..	13	212	94.2%	85.8%	98.9%
Total...	20	435	95.6%	87.6%	96.4%

Suggestions for Recommended Practices

Dillman et al. (2014) argue that best practices for survey design use a holistic approach. Similarly, good drop-off/pick-up surveys need to use a holistic design that includes the questionnaire, staffing, script, details for both dropping off and picking up questionnaires, etc., where each part reinforces all the rest.

Preliminary work. The preliminary work is as important for DOPU surveys as it is for any other survey method. For DOPU, besides developing the survey

instrument and broader survey design, these steps include sampling, writing a script, and notifying those in the sample about the survey ahead of time. Additionally for DOPU, a system is needed to track questionnaire delivery and retrieval status for every household in the sample. Note cards have typically been used for this, but the information could be tracked electronically. Local police agencies should be informed of the survey since field workers will be approaching homes and residents in their jurisdiction, and some communities may have restrictions surveyors need to know. Finally, materials needed for conducting questionnaire drop-offs and pick-ups must be assembled (Steele et al. 2001) (see Table 3).

Sampling. Where needed, DOPU techniques can assist with sampling at the household level, whether to augment poor sampling frames or aid complex survey designs (Smith et al. 2001, see also Steele et al. 2001). Even in these cases, researchers must plan their sampling strategy. Face-to-face random selection at the door helps reduce self-selection bias about who completes the questionnaire; a frequently used quasi-probability method is selecting the adult resident who has had the most recent birthday (Steele et al. 2001).

For our study, county information technology and tax assessors' offices worked together to produce a list of all residential properties in the study area, which served as the sampling frame. Using systematic probability sampling, a sample of households was drawn for each of the two counties, oversampling to avoid the need for replacement sampling if some addresses were invalid or vacant. We also used the most recent birthday method to select individual respondents.

The script. DOPU surveyors use a script for their interactions with potential respondents (see Appendix A for our script, see also Kiger and Riley 2002). To make the most of the opportunities for social exchange, that script must be well-crafted. It should emphasize the benefits of response, explaining how potential respondents' participation will be useful and asking them for help. For example, our script mentioned that, although respondents' individual answers would remain confidential, hearing their feelings and thoughts was important because the summarized results would be shared with policy makers, county and community leaders, and Great Salt Lake researchers. The script should also explain how the social costs for participating have been reduced, for example that respondents can

complete the questionnaire at their leisure. The surveyor attempts to build trust by introducing him- or herself as a research assistant from the sponsoring organization while wearing a name badge that reinforces that affiliation; assurances of confidentiality are given verbally, and a sealing manila envelope is provided so respondents can seal their completed questionnaires for privacy. Of particular importance, the script must be understandable and engaging for potential respondents in the study population.

Additionally, the script can provide ways to reduce reluctance of potential respondents (Massey and Tourangeau 2013). For example, in our study we were concerned that residents might respond to a survey request negatively, saying they did not like the lake or were not interested in it. Our script addressed this immediately: after introducing ourselves we said,

> We are doing a survey about how the Great Salt Lake affects the people who live closest to it. In northern Utah we tend to hear some people talk about the lake in very positive ways while others have more negative feelings, and a lot of people don't seem to think about the lake much at all. We're interested in how it is for the folks who are neighbors of the lake, no matter where they fall in that range.

This anticipation of possible reluctance was an attempt not only to increase response rate, but also to reduce the nonresponse error that would result if only those who were interested in the lake responded to the survey.

If a questionnaire has not been completed by the pick-up time, each subsequent interaction provides another opportunity to reduce reluctance, and the script should treat these repeat attempts accordingly. Our script did not make the most of these opportunities. Dillman et al. (2014) assert that targeting likely nonrespondents with follow-up requests is useful in increasing survey cooperation rates.

Prior notification of potential survey respondents. Research on survey methodology has found that contacting individuals before a survey being administered can improve response rates (Dillman et al. 2014). Prior notification can start the trust-building process, and with DOPU surveys, it can explain the presence of strangers knocking on doors. Dillman et al. are referring primarily to mailed notifications, a tactic used by few DOPU researchers (Campbell et al. 2011; Stover and Stone 1974). With DOPU surveys, notification is often done through press releases to local newspapers, or notices in community newsletters or utility bills (Riley and

Kiger 2002). In our case, we submitted press releases to the newspaper, but they were never published.

Assembling a Research Team

To use DOPU, a survey administration team is needed (see Table 3). These teams often consist of graduate research assistants (Riley and Kiger 2002), however undergraduates or bachelor's degree holders can be utilized. Many DOPU surveys have used teams of surveyors who travel to the study area in groups and stay in motels for the (short) duration of the field work, moving through communities as efficiently as possible. Both Riley and Kiger (2002) and Steele et al. (2001) suggest that using research assistants from the local area, while being careful to supervise for bias, could be a more economical approach. One caveat with this tactic: surveyors should avoid working in their own home community. It can create confidentiality issues and other concerns for respondents if they know the surveyor, and may lead to the sort of biased, socially desirable responses that can result from face-to-face interviews.

Here researchers must think through several issues, each with implications for the project budget: the type of surveyors to employ (e.g., graduate or undergraduate students, people with a bachelor's degree), whether to use local residents or bring in teams from outside the area, whether surveyors will work in pairs or alone. These decisions also affect the data collection process. For example, bringing teams in from outside the study area not only adds food and lodging costs, it may also constrain the opportunity for continued field work if there are delays in the data collection process. Conversely, hiring people from the study locality requires a process for recruiting, hiring, and supervising these individuals. All team members should have a social science background so they are familiar with research methods and ethics.

Our research team consisted of the lead researcher (a Ph.D. candidate collecting dissertation data) and six research assistants. All of the field workers lived within 20 miles of the area they were assigned to cover. All but one held recent bachelors' degrees in social and behavioral sciences (the last was finishing her degree), and nearly all had undergraduate research experience, both points noteworthy as this meant they were versed in social science research methods and ethics. However, all but one had full-time jobs, necessitating the scheduling of their survey work around their existing work schedules.

Although both Riley and Kiger (2002) and Steele et al. (2001) refer to surveyors working in pairs, our team members worked alone. The lead researcher made this

decision based on several considerations, including cost and time. She was familiar enough with the study locations to know they were low-crime areas, she was aware of other studies where surveyors worked alone, and she felt pairs of strangers might seem more intimidating to residents than individual surveyors. None of the team members were concerned about the arrangement, and later mentioned they felt this individual approach may have aided people's responses to us.

Staff training and practice. Experience with DOPU work left the lead researcher strongly committed to adequate staff preparation. A lack of training and familiarity with the research left her ill-prepared for working on a fellow graduate student's DOPU project. Later she became aware that surveyors on another project arbitrarily decided which households to approach, without consulting with or informing the primary investigator, although this went against the survey protocol. These experiences impressed on her the need for training, for including an emphasis on social science research ethics, and for building a team committed to the project rather than just employing a few "hired hands." Given the lack of guidance on preparing the team in prior instructive works on DOPU techniques, we offer our suggestions (see Appendix B for an example of training notes and Table 3).

Besides surveyors needing a background in social science research methods and ethics, research assistants should be required to provide human subjects certification, even if it is not required by sponsoring agencies. Additionally the training should explicitly address pertinent research ethics. The team must be instructed on the specifics of DOPU, including utilizing the tracking system, using a script to introduce the study and explain procedures, and being persuasive while respecting the voluntary nature of participation. As Riley and Kiger (2002:9) stated, DOPU is "most effective when surveyors are carefully trained in the art of politely talking respondents out of refusing." Surveyors should be provided with background on the study for which they are collecting data, including the objectives, research questions, and any information that might assist them in the field. By the end of the training, research assistants should be able to answer questions about the study to assist in building the trust necessary for social exchange dynamics. A goal is for them to become team members invested in the project.

For our study, each research assistant was compensated for providing current human subjects certification. To give the team an understanding of the present study, the lead presented related qualitative research. Education on techniques included how DOPU works, why we were using it, and possible problems and

TABLE 3.   RECOMMENDATIONS FOR CONDUCTING DROP-OFF/PICK-UP SURVEYS

Preliminary work:

- Develop survey design, including well-designed questionnaire and cover letter (typically printed inside front cover of the questionnaire)
- Sampling – may be augmented during the field work
- Write script – for interaction with potential respondents, critical for it to be well-crafted for assisting in social exchange dynamics that can increase response rates. Needs to briefly include reference to social benefits and reduction of social costs, and should help build trust
- Prior notification of potential respondents – by press release, lawn signs in the neighborhoods, door hang-tags, or notification letters to sampled households
- Devise tracking system – for tracking progress with each residence in sample. Needs to have address of house; needs to track time and date of every contact and attempted contact, note when the questionnaire is dropped off, and attempted pick-ups; also useful information about the residence (which apartment door is right; best time to find them home; presence of a worrisome dog; use side gate instead of front; newspapers stacking up, so may be gone, etc.).
- Contacting local police agencies to inform them of the household survey in the community
- Assemble materials for surveyors:
  - Name tags (should identify sponsoring organization)
  - Script
  - Survey Questionnaires with cover letter
  - Manilla envelopes – to provide privacy for completed questionnaires before putting them in door knob bags
  - Door knob bags – for respondent to hang completed questionnaires from the door knob (or other visible place if there is no door "knob")
  - Tracking system materials, such as index cards and file box for them, or electronic device
  - Note pad, pens & tape for leaving notes for respondents when no one is home
  - Forms for tracking hours & mileage for surveyors
  - Maps of the study area
  - Check list surveyors can use each day to make sure they have what they need
  - Miscellaneous supplies: paper clips, binder clips, highlighters, etc.

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Assembling and training a research team:

- Plan number and type of surveyors to hire (education and experience level, whether local or brought into the area from elsewhere, whether they will work singly or in pairs, etc.); include related costs in the project budget (e.g., pay, gas; lodging and food if from elsewhere)
- Staff training:
  - Review research ethics (and require human subjects certification)
  - Train on specifics of DOPU methods and rationale
  - Provide background information on the research project for which data are being collected
  - Give research team the opportunity to meet each other and begin gelling as a team
- Practice/pretest of the questionnaire – use questionnaire pretesting as an opportunity for team members to practice in a situation as close to the actual research as possible

Time in the Field:

- Preparation:
  - Plan how the study area will be covered by surveyors, including travel time
  - Schedule the hours the team will be knocking on doors – typically during daylight hours (if possible, daylight-saving time has a larger window of daylight hours)
- Interaction with Selected Households:
  - Making contact – with household and with selected respondent. Survey design should include multiple attempts for both steps; interacting directly with the respondent is key for social exchange dynamics.
  - Hand-delivering the questionnaire (the drop-off) – surveyor works from the script to lay the foundation for social exchange dynamics that can assist in facilitating the completion of the questionnaire.
  - Pick-up of completed surveys – by arrangement, typically one to three days after drop-off.
    - Survey design should include multiple attempts at pick-up, with recurring engagement with the respondent. Another questionnaire may be provided for ease of completion.
    - Typically survey design includes providing a postage-paid mail back envelope if repeated attempts at pick-up are not successful.

- Techniques used by one or more of our research team in their interactions:
  - Writing the agreed-on day and time for pick-up on small sticky notes and putting them on the questionnaire cover as a reminder for the respondent
  - Using the word "commit"/"commitment" in interactions with the respondent – the surveyor asked respondents if they were committing to complete the questionnaire, and then if repeat visits or notes were needed for pick-up, she would thank them for their commitment to help or some variation of that
- Interaction among the research staff:
  - Lead and individual surveyors: Turning in collected questionnaires (and tracking cards if using a note card system for tracking), and provision of new materials; also periodic safety checks and debriefing (daily or every few days, depending on hours, survey)
  - Full team/smaller subgroups: Periodic meetings to iron out coverage issues, compare notes, discuss problems and brainstorm solutions; also serve to maintain communication and a sense of team
  - Between individual surveyors: Surveyors occasionally need to cover for each other, for example if a potential respondent is only available at a time when the original surveyor cannot visit the residence, if a surveyor gets sick and pick-ups need to be done, etc. They need to have each other's contact information.

solutions, with time for questions and discussion. The lead researcher was intentionally thorough in preparing the team, emphasizing that this was a research project requiring both rigor and ethical work. The training also gave team members an opportunity to meet each other and begin bonding as colleagues.

During the training the team leader discussed impression management (important for successful social exchange) and how these issues could affect the response rate and run the risk of introducing bias to the responses we obtained. Team members later reported this discussion likely contributed to making people receptive to us. One member put it this way:

> I was very aware from day one that I was stepping into their world. I made sure I didn't have a loud stereo, didn't smoke, didn't ever go over the speed limit, and I made sure if the folks waved, I smiled and waved back. By the

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last two weeks, many of the homes I went to said, "Oh we know who you are and we're glad to help," so I know we were talked about.

Steele et al. (2001) reported that in their multi-community study, the survey team obtained the lowest response rate in the first community surveyed and that response rates improved as team members became more practiced. To minimize this problem, for our study we used the pretest of the survey instrument to give team members practice without it counting against the response rate. Each team member was given three addresses within the study area but not in the selected sample, with replacement addresses to use if necessary. A paragraph was inserted into the script informing respondents we were in the early stages of the survey and were trying to catch any problems with the questionnaire. We used a professional-looking draft of the survey questionnaire, and respondents were asked to note in the margins if anything was unclear or confusing so those things could be corrected. This worked well both to pretest the survey instrument and to help surveyors go into the field with more familiarity with the process and confidence from the start.

Time in the Field

The time in the field to collect data requires planning and preparation (see Table 3). For example, coverage of the study area and the hours in the field must be planned, along with other details for survey administration.

Coverage of the study area. Survey administrators must plan how to cover the entire study area with the surveyors. Here researchers should sort out travel needs to and within areas, whether communities, neighborhoods, or individual households. They must consider distances, the type of housing in the area (e.g., multi-unit or single family), whether one needs a car for each stop or if some areas are clustered enough to walk, etc. Individual surveyors or teams can be made responsible for covering specific areas or coverage can be handled in another fashion.

For our study, each team member was assigned to areas as close to her own home or work as possible to minimize driving time and cost. Our sample included households in 17 communities (suburban cities, and rural townships and unincorporated areas), with the number of selected households from those communities varying from 3 to 86. For the most part, each community was covered by a single team member (and most team members covered more than one community), which made the process more efficient as that community's surveyor could get familiar with the streets, any rules for that community, and important details such as the location of public restrooms. We shifted to new communities as

areas were covered. The size of the geographic area and number of households covered by any given surveyor varied tremendously, partially due to some areas requiring more driving time than others. Additionally, the number of hours surveyors put in varied widely due to their differing work schedules.

One team member felt one of the biggest strengths of the project was this dual dynamic of personal responsibility for our own areas, combined with the 'support group' of the team:

> I think dividing the sections up and having each of us take an area that was designated specifically for us was helpful. We built a relationship with that community and that made it quicker and easier to get the questionnaires out and back. Having my own set of households I was responsible for completing gave me a motivating pressure to get them done as quickly and efficiently as possible. I did not want my area to be the section with a low response rate, or with questionnaires left out in the field.

Three research assistants were assigned to one county and three to the other, with the lead working in both counties as needed. When one of us needed help with appointments for pick-up or other tasks, we typically asked someone from our county subgroup.

Scheduling hours. Field hours should be scheduled to take advantage of when sample members are most likely to be home and available, while respecting their needs and norms. For example, in our study we worked Sunday afternoons and evenings despite being in conservative Utah. Surveyors were instructed how to respond (apologetically) if any households were offended. However, in one community the police agency told us specifically that we could not administer our survey on Sundays, as there was a city ordinance against disturbing families on Sundays. Considerations such as these play a role in scheduling the needed time in the field.

Typically field time for DOPU surveys is scheduled to end before the sun sets, since many people would be uncomfortable with strangers knocking on their doors after dark. Accordingly, scheduling DOPU surveys during daylight-saving time if possible is best. Short winter evenings leave little time for surveyors to find people at home after work but before it gets dark. For our study, conducted in the summer, our hours were Monday through Friday 5:30 to 9:00 P.M., Saturday 9:00 A.M. to 9:00 P.M., and Sunday 2:30 to 8:00 P.M. For households where no one was home during these times, we tried in the later morning or the afternoon. If we were told

the selected respondent for a household was home at specific times, we arranged to visit that home during those hours.

Interactions with selected households. All the steps to this point have been in preparation for this: the actual interactions with the households in the sample, where the social exchange occurs. The research team's task is to convince potential survey respondents that both survey and surveyor are trustworthy, and that the social rewards of participating will be more important than the minimal costs of the time and energy to complete the questionnaire. The aspects of a well planned and carefully prepared DOPU survey all play a role here.

The challenge then becomes making contact. To increase the possibility of making contact with selected sample members, Dillman et al. (2014) recommend repeated attempts at contact and varying the timing. For the best response rates, speaking directly with the selected individual is important, even if it requires multiple call backs to find that person at home (e.g., Walker 1976; see also Melevin et al. 1999).

To drop off the questionnaires in our survey, at least three attempts were made to contact residents at each household in the sample, at different times and on different days of the week, initially to contact someone in the household so the specific participant could be selected. If the selected person was not available then, after finding out when he or she might be home, the surveyor would come back to talk directly with the potential respondent.

Working from the script, the surveyor provided an explanation of the survey directly to the respondent, which is crucial for social exchange. She returned to collect the completed questionnaire 24 to 72 hours later, by arrangement. If the questionnaire was not waiting, the surveyor would knock and ask for the selected person, telling him or her the surveyor was there to pick up the questionnaire. If it was not completed, the research assistant would arrange to come back the next day (or soon thereafter) to pick it up, thanking the respondent for being willing to complete it. This was done as often as needed, as time allowed. If the respondent was not available, the surveyor would ask about a good time to return. If no one was home, the surveyor would tape a note to the door thanking the respondent for the willingness to participate in the survey, and stating when the surveyor would return to pick up the questionnaire, with a reminder that it could be left in a door knob bag for collection. At any of these steps, additional survey materials might be provided in case the others had been misplaced.

While a completed questionnaire waiting in a bag on a doorknob was always a welcome sight, empty doorknobs provided opportunities to encourage questionnaire

completion. Each interaction with a respondent allowed more relationship- and trust-building, giving the surveyor the opportunity to answer questions, and to reinforce but also reframe the request for cooperation. The surveyor's repeated presence implied the importance of the study and the respondent's participation.

Due to working around full-time job schedules, most of our research assistants were unable to spend as many hours per week in the field as they anticipated. Consequently data collection took six weeks, twice as long as we had planned. This was advantageous, though: because we were in the neighborhoods and could continue to stop by homes on our way past, we could catch people who had been on vacation or otherwise unavailable earlier during the data collection period, assisting both contact and response rates.

Interaction among the research staff. The need for a strong team approach is critical to the process: coverage of the study area, making multiple call backs, following through with a teammate's households when necessitated by scheduling, etc. Effective teamwork can facilitate brainstorming solutions to problems and provide motivation despite slow or frustrating days. It can also address possible safety and security issues.

For our survey, throughout the fieldwork the lead researcher met with individual surveyors to pick up completed questionnaires and supply new materials at least once a week, and was in contact by phone and email more frequently than that. The full team met twice, with more frequent meetings for the two county-level subgroups. Team members used the meetings to iron out coverage issues, compare notes, discuss problems, and disseminate strategies. For example, one team member told us she had started writing the day and time for pick-up on sticky notes she put on the questionnaire covers. This worked well to remind respondents when she would be returning. This practice was then adopted by at least one other team member, who also found it useful. At one meeting a team member asked if others were having problems with questionnaire pages turning two at a time, making it easy for respondents to skip pages unintentionally. To our surprise, what we each had thought was an occasional problem was being experienced by all of us – apparently the economy weight of the questionnaire paper had created a problem. We devised strategies for working with the pages in attempts to prevent this, and added a line to the script making participants aware of the problem. Team meetings were good places to brainstorm talking points, for example prompts that could help family members give us an idea of when we might find a young adult respondent at home. Meetings were also used to pass on progress updates, and helped team members stay motivated and invested in the project.

Continuing to foster a sense of team attachment among surveyors was important to the success of our project. One of us observed,

> If we hadn't started our training for administering surveys with group meetings and feedback sessions, I don't think any of the surveyors would have had as much confidence and loyalty in the project. Being able to call some of the other team members when we were having problems or needed a hand with something was incredibly helpful, and kept everyone moving forward.

To that end, the time and expense of team meetings was a productive investment.

Social exchange dynamics. As mentioned earlier, DOPU allows for more effective utilization of the elements of social exchange than other survey methods. The personal interaction of DOPU allows the research team to bring in these elements before the respondent even opens the questionnaire. One of us observed,

> Having someone stand out in the heat in front of a house, looking professional, and yet slightly pathetic, seemed to tug on people's sympathetic heart strings. It is so easy to say no to some anonymous person on the phone, but when someone has come to your house multiple times, talked to you and your family, and left messages when you aren't home, it seems like the least you can do for them is fill out a survey questionnaire and put it on your door knob!

Surveyors can assist participants in building trust in the survey project by emphasizing the importance and legitimacy of the survey, and by following through with collection "appointments," including checking back with the respondent if the completed questionnaire is not available for collection. This last can also demonstrate the social cost of *not* completing the questionnaire, since the team member will check back with the respondent, repeatedly if necessary, until the completed instrument can be collected. It does not take long for the respondent to realize the easiest way to make the surveyor go away is to complete the questionnaire! Respondents could change their minds and refuse to participate, but there is more social cost involved in this action since they would have to inform the surveyor after having agreed to complete the questionnaire. One of our team asked respondents if they were committing to complete the questionnaire. Then if a note were needed later, she would write something like "we really appreciate you

committing to doing this," and always ended her notes with "thank you for your commitment to helping with this research."

Weaving professionalism throughout all design elements and through all the interactions goes a long way to help with trust-building, aiding the social exchange dynamics that can lead to higher response rates. In these ways, the "foot-in-the-door" approach, that is, getting people to perform a small task such as talking to a surveyor before asking them to perform a larger one such as participating in a survey (Dillman et al. 2014:37), is much more literal with a drop-off/pick-up survey.

Beyond Response Rates: Effectiveness and Challenges of a DOPU Survey in Our Case

Although the overall response rate was 83.7 percent, we did not track outcomes of the innovations implemented by research team members, such as using sticky notes or reminders that included the word "commitment." Unfortunately, we cannot report whether these tactics made an empirical difference in response rates.

Evidence of Effectiveness. Because we anticipated an issue with the survey's salience, our script was designed to encourage residents to participate. As we knocked on doors, these concerns were verified: while some residents were very positive, many told us they did not think or care about Great Salt Lake and others were quite negative. We assured them we needed to see how widespread all these different responses were, and informed them that there were questions they would be directed to skip, so it would take less time for them to complete the questionnaire. As a result, most participated.

Additionally, the value of personal interaction with respondents could be seen in the quality of our data. For example, despite the instrument being 14 pages long, 14 percent of respondents wrote comments in the margins or at the end of the questionnaire. Even these handwritten notes demonstrated a wide range of perspectives, including dislike and disinterest.

As other researchers have mentioned, our time in the field also allowed us to obtain a better understanding of study area neighborhoods and homes (Allred and Ross-Davis 2011; Steele et al. 2001). This included observing some GSL-related dynamics these residents experience, such as noticing whether the property had a view of the lake, seeing salt-related corrosion on metal at even newer homes, smelling lake-associated odors, and witnessing Great Salt Lake sunsets. Experiencing what respondents talked about aided our understanding of their responses.

Challenges and barriers. Two sociodemographic trends created challenges and barriers to our data collection. The recent trend of young adults living with their

parents longer created challenges at times when someone from this demographic was the designated participant. If a young person was not home when the surveyor stopped, often family members indicated they had "no idea" when the selected participant would be available. However, if given prompts such as, "Does she usually come home right after work?" or for people who worked or stayed out late, "What time does he usually get up in the morning?" many family members could successfully predict a time the young adult would be home. These young people were often good respondents; being asked for their input appeared to validate their adulthood.

Recent increases in immigration to Utah also created challenges. Sometimes, these were cultural challenges, with immigrants more guarded and private than are many Utahns. In three cases, language differences were a barrier.

DISCUSSION AND CONCLUSION

We realize the relationship between response rates and respondent bias is complex, however the potential for nonresponse error represented by low survey response rates has been a concern for survey researchers in the U.S. (Brick and Williams 2013; Dillman et al. 2014). Massey and Tourangeau (2013: 232) argue that, "while response rates may be flawed as measures of nonresponse bias, they are still widely seen as important indicators of overall survey quality." We have presented evidence that drop-off/pick-up surveys provide an alternative survey method capable of achieving higher response rates than other methods. This is likely due to the personal interaction with potential respondents. Our own experiences with DOPU methods are in keeping with what has been seen in prior works such as Riley and Kiger (2002) and particularly Lovelock et al. (1976). Despite salience concerns, we achieved a response rate of nearly 84 percent. Additionally, as suggested by Allred and Ross-Davis (2011) and Steele et al. (2001), we could make observations about the neighborhoods and households in our study area, helping us better understand our findings.

Social exchange theory can explain the success of this methodology (Allred and Ross-Davis 2011, see also Dillman et al. 2014), in that a well-designed survey and well-executed interaction with the potential respondent can lead to the latter feeling a sense of obligation to the researcher and/or society and increasing the likelihood that the questionnaire will be completed (Cropanzano and Mitchell 2005; Dillman et al. 2014). Social exchange principles can help us better predict which DOPU designs might work most effectively. Given the degree to which DOPU methods allow researchers to capitalize on social exchange dynamics, through trust-building

interaction with respondents, and opportunities to increase social benefits while minimizing social costs for survey participation, it makes sense that DOPU would be most successful when best utilizing elements of social exchange. We have seen evidence of this in the impressive response rates achieved in many DOPU surveys (Allred and Ross-Davis 2011; Brehm et al. 2006; Riley and Kiger 2002; Smith et al. 2001; Waight and Bath 2014), including situations where achieving adequate response could have been quite challenging (Pedersen et al. 2011). We have also seen some evidence that survey designs with abbreviated opportunities for social exchange, such as not making call backs to find someone at home, using a short script with little interaction, or failing to schedule around the likely availability of residents, may do considerably less well (Stough-Hunter et al. 2014; Westphal et al. 2014).

Some success with the authors' survey may be explained by Utah's culture, where residents could be more trusting and cooperative than in many places. A pattern of higher response rates has emerged in DOPU work conducted in Utah: for example, Riley and Kiger (2002), rates of 80 to 85 percent; Olsen et al. (1998), 93 percent; and Bush and White (1985), 94 percent. In a DOPU survey conducted in five states, Murdock, Krannich, and Leistritz (1999) reported the highest response rates in Utah. In a series of DOPU surveys, Steele et al. (2001) reported high cooperation rates in a Utah study, as compared with surveys conducted in Pennsylvania, the Great Plains states and other Western states. Our survey is consistent with the pattern in these earlier works, suggesting these dynamics still exist, at least in the rural and suburban areas where we conducted our survey.

Impressive response rates have also been seen in other locations, though, for example a response rate of 88 percent in Llandudno, in North Wales (Devine-Wright 2011), and of 96 percent in the state of Selangor, Malaysia (Said et al. 2003). As noted by Steele et al., "the technique is best suited to places where residents are receptive to visitors in general and researchers in particular" (2001:241).

However, other concerns should be considered besides the nonresponse error that may (or may not) result from a lower response rate. Massey and Tourangeau (2013:230) argue, "the issue of nonresponse sometimes boils down to a trade-off between cost and bias and ultimately depends on how much researchers are willing or able to spend to minimize the potential for bias inherent in a high rate of nonresponse." DOPU methods have been found to increase response rates, but it is at a cost – often a substantial one (Allred and Ross-Davis 2011; Maclennan et al. 2011; Steele et al. 2001). It may be that optimal response rates are too expensive for many studies.

Our suggestion would be to incorporate as much of the benefit of social exchange dynamics as a project can afford. If a researcher is unable to pay staff to make as many callbacks, or to stay in the field as long as he or she might prefer, the survey design can utilize social exchange practices within the script and with whatever interaction is feasible. If increasing response rates substantially is not possible, perhaps the completion rate can become the focus (e.g., Stough-Hunter et al. 2014, with a 98 percent completion rate). Utilizing social exchange dynamics as much as possible can help optimize the budget one has with which to work.

Besides cost, another limitation of DOPU surveys is the spatial limitation of the technique. The method would not work well for large geographic areas unless the study area could be divided into compact spaces for coverage by individual surveyors (Lovelock et al. 1976; Riley and Kiger 2002; Steele et al. 2001). Jackson-Smith et al. (2016) experimented with using DOPU for a large-scale survey project, where sampled households were clustered in neighborhoods. Some types of neighborhoods were more conducive to a DOPU approach; others strained the benefits of this survey methodology.

Some researchers found barriers for DOPU in the lack of access to residences in gated communities and secure apartment buildings (e.g., Hall and Slothower 2009; Jackson-Smith et al. 2016). Situations such as these may increasingly require multi-method approaches (Dillman et al. 2014). Jackson-Smith et al. (2016) added a postal survey to their DOPU design to include these types of residences. Conversely, Westphal et al. (2014) added a DOPU component to augment a low response rate in a mail survey. Experimentation would be useful to determine how to best include DOPU in a multi-method survey design.

Future studies could consider how to better utilize strengths and compensate for weaknesses in current DOPU practices. For example, prior notification of survey respondents can increase response rates (Dillman et al. 2014), and can serve as a first step in building necessary trust in a survey. However, DOPU studies have typically used means such as press releases or announcements in utility bills, an impersonal tactic that runs the risk of fewer people – if any – seeing the notification. Researchers could further test whether sending notifications by mail, like Campbell et al. (2011) and Stover and Stone (1974), is an effective investment.

Finally, empirical tests of techniques that have evolved during DOPU administration would be useful. Examples would include the use of sticky notes as reminders of the agreed-on date and time for retrieval of the completed questionnaire, and the intentional use of the word "commit" to describe respondents' willingness to participate. Similar techniques likely evolve for most studies during

the weeks in the field; they should be tested to see which could be included in a list of recommended practices.

Conclusions. With its reliance on social exchange principles useful for producing positive outcomes, the drop-off/pick-up survey method can be a valuable technique for research conducted at the scale of communities or other small geographical areas. Sometimes DOPU has been used to reduce coverage error, as well as what it is best known for – reducing the likelihood of nonresponse error due to its effectiveness at achieving higher response rates than other survey methods (see Dillman et al. 2014; Massey and Tourangeau 2013). The personal interaction woven throughout the method has improved survey outcomes for many survey design complexities, including those where an adequate sampling frame is unavailable. DOPU can increase local awareness of the research and the issues being studied. Additionally, it is well suited to giving student researchers experience in data collection after careful training. DOPU is a notably useful tool to include in the survey researcher's toolbox.

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APPENDIX A.   SURVEY DROP-OFF/PICK-UP INSTRUCTIONS AND SCRIPT

DROP-OFF:

Hello, I am _____, a research assistant from Utah State University. We are doing a survey about how the Great Salt Lake affects the people who live close to it. In northern Utah we often hear some people talk about the lake in very positive ways while others have more negative feelings, and many people don't seem to think about the lake much at all. We're interested in how it is for the folks who are neighbors of the lake, no matter where they fall in that range. Your home was selected by a scientific sampling procedure that included all the homes that are within [DAVIS: a mile and a half of the lake] [WEBER: a mile of the lake's high water line].

To make sure we include an even mix of men and women, and both older and younger residents, we need the survey to be filled out by the adult who lives in this household who has had the most recent birthday—by adult I mean someone 18 or older. Is that person here?

- If the person is there, ask to speak with him or her; if not, ask when would be a good time to come back
- If the person is there, start over if they have not heard, down to most recent birthday, then continue:

We really appreciate your participation. This survey will only take 20-25 minutes for you to complete. It is very important that your feelings and thoughts are heard because, although each individual's answers will remain completely confidential, the summarized results of this survey will be shared with policy makers, county and community leaders, as well as researchers who study the lake. We haven't had a chance to hear from people who live this close to the lake. Your opinions, feelings, and experience are valuable—whether you've spent any time at the lake or not, whether you care about the lake or not. We will leave the questionnaire with you for a day or two so you have plenty of time to respond.

At this point pause to make sure they agree to participate. Note that up to this point, the respondents are not asked if they agree to fill out the questionnaire; remarks are presented as if it is assumed that they will do so.

When you have completed the survey, put it in this envelope and seal it, so it is completely confidential. You can put it in this plastic bag and hang it on your outside doorknob, then we can pick them up without even bothering you again and it won't require you to be home when we come by. Is that OK? Would it be too early if I came back tomorrow? I can come by on (name day) *sometime between ___ and ___ A.M./P.M.* [a two-hour block] *to pick it up. Thanks so much for your time.*

- If they say one day is not enough, ask them to specify another day. If they refuse to participate, say:

  Are you sure you wouldn't have time? Your input is really important so that this study is representative of all sorts of people. It would be valuable for us to hear what you have to say, and it only takes about 20-25 minutes.

- If they still say no, thank them for their time.

RETURN VISIT & PICK-UP

At the arranged time, return to pick up the questionnaire. Outside the home, flip through the questionnaire to make sure it has been fully completed.

- If it is complete, simply leave.
- If not complete, knock, and ask for the person who filled it out. Say to him/her:

Hi. Thanks for taking the survey. I noticed that it is not entirely filled out.
If I left it with you another day, do you think you could finish it?
Arrange when you will pick it up.

• If the survey is not hanging on the door, knock on the door and say:

Hi, I dropped off a survey questionnaire [a day/a couple days] ago for
Utah State University and expected to pick it up today.

• If the respondent indicates that he or she has not had a chance to do it yet, say:

That's OK, we can give you another day if you like. We can come
by tomorrow evening around the same time. If you just leave it on
your door knob, we can pick it up without bothering you again.

• If they misplaced it, give them a new copy of the questionnaire.

• If they want to give the survey back without completing it, reiterate how important their response is and repeat the purpose of the survey.

• If there is no survey on the door and no one at home, leave a handwritten note on the door that says:

Thank you for agreeing to complete the survey about living close to
the Great Salt Lake. We appreciate your taking the time. I came by
to pick it up today, but unfortunately you were not home. I will
come by again tomorrow (indicate day and date) *between _____*
and _____ A.M./P.M. to pick it up. Simply hang it on the door knob.
Thanks, (your name).

• If the survey is not there the next day and the family not at home, leave another note:

We came by again to collect the survey, but unfortunately
no one was home. Your participation in the survey is very
important to make sure that the results of the survey

represent your community (fill in if you know the name of community). *Please remember your response is confidential. We appreciate that you agreed to participate, and will return tomorrow* (date and time) *in the hope of collecting the survey.*

APPENDIX B.   OUTLINE OF NOTES FROM OUR TEAM TRAINING

(*Watch for places to involve them, places for breaks*)

INTRODUCTION
- Tell folks to get some pizza
- Brief intros of team members to each other—go around
- Talk about hours/days they think they will be available for survey work

PRESENT MY PRIOR WORK ON THE STUDY
Do research presentation of qualitative portion of study (including power point)
- To give them some understanding of the project
- Study areas—show maps from e-files
- Sampling method: at household level, at individual respondent level

DROP-OFF/PICK-UP SURVEY METHODOLOGY
- Why use it—benefits
  - Improves response rate—better the response rate, the higher the chances are of representativeness
- Give brief article on how it works (or send out ahead of time) [Used Riley and Kiger 2002 for this]
- Why important particularly for this study
  - Our job: try to convince them participating *is* important, no matter how they feel about the topic—we need to know *all* perspectives
- How DOPU works
- How we'll do it
  - Materials
  - Hours
  - Be aware of how long it will take you to drive to your neighborhoods, so you can start knocking on doors as scheduled
- Anticipated time line for the time in the field for the full survey

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- • After the pretest
- Money matters: pay, mileage
- Script
  - • The importance of speaking directly to respondent—decreases response rate otherwise, they've seen & documented this in other studies
  - • You may need to reassure folks who say they don't even think about the topic, or don't like it—their responses are important too, there are places in survey where we ask them to note that very thing
  - • If they have questions, give them my card, tell them to feel free to call
  - • If YOU have questions, feel free to call—if I do not answer, leave a message, I will call right back as quickly as I can (while you are in the field)

METHODOLOGICAL & ETHICS ISSUES:

- The importance of rigor, sticking to the sample & only the sample
- "What if…"—will come back to contingencies
- Balance between persuasion & voluntary participation – you want to try to persuade folks to participate, but remember participation must be voluntary, and no means no
- Human subjects training [get certificates, give compensation]

OTHER DETAILS

- Clothes & appearance (business casual – professional, but not too much)
  - • Name tags
- Vehicles—be aware of things like bumper stickers – the issue is not about being P.C., but that our single biggest job is to increase response rate
  - • Our communities are VERY conservative—folks live in them because they do not want to live in a Big City
  - • Like Men in Black—you want to be a little forgettable
  - • If have anything objectionable on your car, you might want to see if you can cover it for the duration (I know, I had to take off a couple I loved, I have a couple more waiting until study is done!)
  - • Think about the volume of your music on your car stereo
  - • This is not about trying to micro manage, I am just asking you to think about things you might not have thought about
- You are going to be out there in July—make sure to take plenty of water – but also, when you get into your neighborhoods, find the closest public restrooms

PRETEST

- Why, how, how it is different from the actual survey
  - The questionnaire is not the real deal (not the final version), folks NOT in sample, responses not counted as part of data
  - Ask them to make little margin notes if they find things that seem weird or confusing or do not work well
    - Do not tell them we are pretesting—just that we are in the early stage of the survey, & we would like any feedback they want to give us on the questionnaire itself
      - If they talk about it, take notes for me!
    - You will have pretest script with this in it
  - This will give us a chance to pretest instrument AND practice our delivery & such before it counts against the response rate
- Timing

CONTINGENCIES

- You cannot find the address
- Multi-family dwellings
- Scary dogs
- Other general scariness
- Sampled individual is gone on an extended absence—gone for two weeks or more
  - Replace with person with next closest birthday
- If several days/nights/weekends without initial contact—check w/ neighbors
  - E.g., three different days at different times – at least five attempts – then check w/ neighbors to see if someone lives there, or if they know if there is a good time to catch them at home, or if they are away
  - If it looks like folks are around, but you just keep missing them, e.g., stuff in yard, curtains, etc., moved – then keep trying, try more in that situation than if it looks like nothing has changed
  - If it seems obvious no one's there, check with neighbors sooner
  - Can go back later, too, like the next week, or toward end
  - Why such big deal? Because we need be careful before just chalking it up as no contact
- Toward end, if you cannot get the questionnaire back
  - Leave postage-paid business reply letter with a request to mail it
    - I have a supply

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TALKING POINTS ON IMPORTANCE OF STUDY & TAKING SURVEY
- 〔Do this as conversation or paired off, let them develop talking points with which they are comfortable〕

ON FROM HERE
- Let's talk about how to make the mechanics work
  - Keeping you supplied with materials
  - Keeping your gas tanks full
  - My getting completed questionnaires as they get picked up
- On from here…
  - Areas of coverage (use maps, consider hours & where they are coming from—work or home)
  - Getting you stuff for pretests
  - Getting stuff from pretests back
  - I will keep you all informed on process from there—how soon we are ready to start the survey after the pretest is completed, etc.
  - Any questions?