A RAND NOTE

Containing Attrition in School-Based Research: An Innovative Approach

Phyllis L. Ellickson, Domenica Bianca, Diane C. Schoeff

August 1988
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Prepared for
The Conrad N. Hilton Foundation
This article describes a successful approach for tracking a highly mobile group of junior high school transfeerees and thereby minimizing attrition in a longitudinal study of adolescent behavior. Students were tracked through the home or the new school. When students were located through the latter route, we sent the surveys directly to the school itself instead of asking for a home mailing address. This approach avoided asking school officials to give out personal information and enhanced the likelihood of the survey being delivered. Overall, the tracking effort cut nonresponse attributable to between-school mobility by two-thirds and reduced the attrition rate by one-half. The new-school strategy, which was a particularly effective technique for finding student transferees, accounted for a significant proportion of that improvement.

CONTAINING ATTRITION IN SCHOOL-BASED RESEARCH

An Innovative Approach

PHYLLIS L. ELICKSON
DOMENICA BIANCA
DIANE C. SCHIEFF
Rand Corporation

Longitudinal studies of adolescent behavior and attitudes frequently suffer from student attrition, a progressive shrinking of the original sample attributable to student mobility, absenteeism, or refusal to participate in data-collection activities. One method for containing attrition in school-based research involves tracking students who transfer out of the schools in which regular data collection takes place. While such transfers constitute a major source of respondent loss

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in multiyear studies that rely on data collection in the classroom (Josephson and Rosen, 1978; McAlister and Gordon, 1985), few researchers attempt to track secondary school transferees under the age of 16 and even fewer describe and assess their procedures.

Yet attrition of this kind can seriously bias study results or limit their generalizability. It is of particular concern in research on smoking, drug use, and other sensitive topics. Compared with continuing participants, students who drop out of the original sample of schools typically display more characteristics indicating that they are "at risk" for engaging in problem behavior (Bell and Battjes, 1985; Biglan and Ary, 1985; Elliott and Voss, 1974; McAlister and Gordon, 1985; Polk and Ruby, 1978).

This article describes a successful approach for tracking junior high students who are no longer enrolled in participating schools. The overall strategy, which involved sending a self-administered questionnaire to the transferees with an offer of a small monetary payment for completing it, included an innovative technique for locating them—identifying the school to which the student had transferred and sending the questionnaire to the new school with a request to give it to the student.

This "new-school" strategy was designed to mitigate the problems we anticipated in locating a highly mobile population of young adolescents. Most tracking efforts search for an older post-high-school group that includes both stayers and movers: individuals who have remained at their old address as well as those who have relocated. In contrast, our tracking sample of more than 1,000 consisted entirely of transferees, eighth grade students who were no longer enrolled in the junior high school in which they were surveyed during the seventh grade. While approximately 10% of them had shifted schools without changing their home addresses, the rest had moved at least once. They were also disproportionately likely to come from families with a high propensity for moving frequently: Compared to the students still enrolled in their original schools, they were considerably more likely to live with relatives or single or divorced parents with limited educational credentials. At the outset, therefore, we expected to find few of these students at the last known home address.

The age of our population (12 to 14) posed additional challenges, obviating or diminishing the utility of several traditional tracking techniques. Older adolescents typically move because they are starting college or setting up their own household, frequently leaving behind
parents who know where they are. Our eighth graders, however, usually moved with their families; finding a knowledgeable parent or relative at the old address was the exception rather than the rule. They are also less able to provide complete and accurate secondary source information on persons who would know their new address if they did move. In addition, younger adolescents lack driver's licenses, which require updating in the event of a move and thus provide another source for new addresses.

Hence we looked for a common characteristic among our junior high trackees that would help meet the challenge of finding them. That characteristic was the requirement that adolescents of this age remain in school and the corresponding institutional practice of requesting transcripts from the previous school attended. By asking the original school where the student had transferred, we hoped to locate a substantial proportion of students who might otherwise have been untraceable. However, many school personnel are understandably reluctant to reveal information about a child's new home address, and other researchers have found contacting the school to which the child had transferred of limited utility for obtaining a home mailing address (McMaster et al., 1986). By sending the survey addressed to the student at his or her new school instead, we avoided asking school officials at those schools for personal information about their students, leaving both the decision to participate and to inform us of the new home address to the student.

Thus mailing the survey to the new school constituted a unique and central component of our tracking plan. While many researchers have sought to locate students by contacting the old or new school (Jones et al., 1983; McMaster et al., 1986), we are not aware of any that have actually mailed the survey to the transfer school and assessed the effectiveness of the approach.

**CHARACTERISTICS OF THE TRACKING SAMPLE**

Project ALERT, the smoking and drug prevention experiment from which the student trackees were drawn, is designed to help students identify and resist pressures to use drugs. It encompasses 30 diverse schools from 8 California and Oregon school districts (Ellickson, 1984a,
1984b). These schools were chosen to maximize the study's generalizability to a broad variety of school and community environments: drawn from urban, rural, and suburban communities, they include 9 schools in which more than 50% of the students in the seventh grade are members of minority groups.

As part of the experimental design, 10 schools were randomly assigned to each of three groups—two treatment groups and one control group. In the seventh grade, all students in the 20 treatment schools received the same smoking and drug prevention curriculum. In one treatment group the program was taught by an adult health educator assisted by older teens; in the second group the program was delivered by an adult health educator alone. When they reached the eighth grade, these students received three additional “booster” sessions.

During the study’s first two years, data collection took place before the program began and at three additional follow-up points in all 30 participating schools. Over 6,500 seventh grade students participated in the first two waves of data collection (baseline and three-month follow-up), which involved collecting saliva samples and administering extensive surveys in the classroom about the students' drug use and related behavior.

By the eighth grade, however, 15% of our baseline sample was no longer enrolled in the experimental schools, a not inconsiderable loss from attrition and one that can be expected to rise as the study continues and its participants make the transition to high school. As Table 1 shows, these transferes fit the typical description of “at-risk” students: They are more likely to be minority students, to have lower grades, to come from disrupted families with a lower socioeconomic status, and to have higher rates of absenteeism.

Of even greater concern, they are more likely to have tried or to be using the three drugs targeted by the prevention program (cigarettes, marijuana, and alcohol) and to have engaged in other problem behavior (lying, stealing, cheating, vandalism, truancy). Losing these students did not threaten the study's internal validity, as they were equally distributed across all three experimental conditions. Nevertheless, we felt that collecting data from these transferes could help maintain the study's generalizability to a diverse population. Implementing a tracking effort in the study's second year would also pave the way for containing additional attrition as we continued to follow students through the ninth and tenth grades.
TABLE 1
Differences Between Stayers and Transferees

<table>
<thead>
<tr>
<th>Student Characteristic</th>
<th>Stayers (%)</th>
<th>Transferees (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minority (excluding Asian)</td>
<td>22.7</td>
<td>35.1</td>
</tr>
<tr>
<td>Disrupted family(c)</td>
<td>37.3</td>
<td>61.6</td>
</tr>
<tr>
<td>Neither parent completed high school</td>
<td>11.5</td>
<td>18.8</td>
</tr>
<tr>
<td>Grades of C or lower</td>
<td>27.5</td>
<td>45.6</td>
</tr>
<tr>
<td>Frequent absences(d)</td>
<td>9.4</td>
<td>17.4</td>
</tr>
<tr>
<td>Deviant behavior(e)</td>
<td>44.7</td>
<td>59.2</td>
</tr>
<tr>
<td>Current user(f)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cigarettes</td>
<td>14.7</td>
<td>26.6</td>
</tr>
<tr>
<td>marijuana</td>
<td>5.1</td>
<td>16.0</td>
</tr>
<tr>
<td>alcohol</td>
<td>22.6</td>
<td>28.0</td>
</tr>
</tbody>
</table>

a. Still enrolled in participating school one year after baseline.
b. No longer enrolled in participating school.
c. Child does not live with both parents.
d. Absent 11 times or more in a 3-month period.
e. Child scored > .25 on a deviant-behavior scale tapping truancy, vandalism, lying, cheating, and stealing.
f. Reported use in past month at baseline data collection.

TRACKING STRATEGY

Our overall tracking plan centered on a traditional mailed survey with mail and telephone follow-up plus monetary incentive. Within that overall strategy, we incorporated the new technique—obtaining information about the student’s new school and, when successful, mailing the questionnaire to that school rather than the last known home address.

If new-school information was not available, we mailed the survey to the “old” home and requested that the post office forward the questionnaire and send us an address correction. Subsequent mail reminders were sent to the school or home, depending upon which one had been used for the first mailout. Telephone follow-up was attempted through the home only. If we obtained a new home or school address for a nonrespondent, an additional survey was mailed to that location.

We chose mailed self-administered questionnaires because we felt they had several advantages over telephone interviews for these
students: (1) The data would be comparable to the survey data collected in the classroom (self-administered); (2) We were more likely to reach students by mail than by phone; (3) Self-administered questionnaires afford respondents more privacy than personal interviews, an attribute of particular importance in a study that asks about sensitive behavior; and (4) mail surveys cost less to administer than telephone interviews.

The payment of $5 served as an incentive for located students to fill out and return the survey. We included an explicit reminder of the voluntary nature of their participation and of our procedures for maintaining confidentiality in the cover letter sent with the questionnaire.

IMPLEMENTATION OF THE TRACKING PLAN

Implementation of the tracking plan was driven by the program and data-collection schedule in the Project ALERT schools. Delivery of the prevention program proceeded in two stages: Four of the eight districts received the curriculum in the fall semester and four received it in the spring. Data collection for each group took place both before and after delivery of the seventh and eighth grade curriculum sessions.

To maximize comparability of the data obtained from enrolled and tracked students, we wanted to time the initial mailout of the tracking survey as close as possible to the administration of "prebooster" surveys in Project ALERT schools during grade 8 (Wave 3). This third wave of data collection took place in October for the fall schools and in March for the spring schools. We also hoped to complete telephone follow-up, which would not start until several weeks after the initial mailout, before the students dispersed for Christmas vacation (fall group) or summer vacation (spring group).

Figure 1 provides a schematic representation of the steps involved in carrying out the tracking plan:

- identifying the tracking sample
- collecting prefield information on the student's home address, new school, or "third-party" sources of information
- determining where to send the first mailout (new school versus old home)
- following up by mail
- following up by telephone
The actual tracking process proceeded separately for two different groups—those transferees identified before Wave 3 data collection in the participating schools and the additional transferees identified after that data collection.

IDENTIFYING THE TRACKING SAMPLE

We defined the tracking sample to include every experimental subject in the 30 schools who had completed a baseline or three-month follow-up survey and moved between grades 7 and 8. We excluded those who had transferred to another Project ALERT school or those whose parents had subsequently withdrawn consent for their child to participate in the research. To identify this group, we created a computerized master list that included the name, original district and school, ID code, and parent consent status of every student who had completed a seventh grade survey. We compared this list with eighth grade master lists supplied by the schools to identify students who were no longer enrolled in their baseline school. Transferes to other Project ALERT schools and students without parent consent were then omitted. This process yielded the prefield tracking sample.

After Wave 3 data collection in the 30 participating schools, we created a new list that included the name of every student who was still enrolled. The subsequent list was compared with the sample master list and the prefield tracking sample to identify additional transferees and eliminate students erroneously identified as no longer enrolled in Project ALERT schools. That process yielded the final tracking sample of 1,045.

COLLECTING PREFIELD TRACKING INFORMATION

Data from our files and the school master lists provided the following information for locating students: names, birth dates, sex, original districts and schools, parents' names, old home addresses, and telephone numbers. To supplement this information we initiated two strategies prior to the first mailout. We attempted to identify the student's new school and to obtain data on potential "third-party" contacts—relatives or friends who might know the student's new home address. As we expected the former to be the most productive, we put more resources into it.
Figure 1

IDENTIFY TRACKING SAMPLE
(N = 1045)

STUDENT 3RD PARTY FORMS

TRANSFER CARDS SENT TO OLD SCHOOLS

STUDENT DATA FROM SCHOOL MASTER LISTS

TRANSFER CARDS RECEIVED BEFORE INITIAL MAILOUT

TRANSFER CARDS RECEIVED AFTER INITIAL MAILOUT

VERIFY ENROLLMENT WITH SCHOOL

Enrolled

MAIL TO NEW SCHOOL

MAIL TO OLD HOME

Not Enrolled

FOLLOW-UP

- Reminder Card
- 2nd Copy of Query to Nonrespondents
- Telephone Follow-Up/Tracking for Nonrespondents

ADDITIONAL MAILOUTS AS NECESSARY
Identifying new schools. To collect new-school data, we designed a transfer card requesting information on the student's new school and its location as well as any available information on the new home address or third-party contacts. Once the prefield 8th grade tracking sample had been identified, we sent transfer cards to the original schools, repeating the process a second time for students added to the final tracking sample. To avoid overburdening school personnel, project staff typically went to the school and recorded the transfer information on the card. However, if the school wanted its own staff to transcribe the information, we reimbursed them for their time.

After receiving the completed transfer cards, we telephoned the new school to verify that the student was (still) enrolled and to solicit cooperation in routing the survey to the student. For the fall group, we verified enrollment whenever the information was received prior to the first mailout or if the information came in after the first mailout and the respondent had not been successfully tracked via the old home. For the spring group, we also verified enrollment if the transfer cards were received before the first mailout. However, most of the information came in too late in the semester to verify enrollment and still mail before school ended for the year; when tracking through the home was unsuccessful we mailed to the new school without calling to verify enrollment.

Overall our efforts to obtain new-school information and verify enrollment were highly successful. We identified new schools for almost 80% of the tracking sample. Among the eight school districts involved in the study, the success rate ranged between 70 and 97%. All eight districts generously made their records available to us; the variation in identifying new schools reflects differences in when they received requests for transcripts and in district policies about keeping records on students who were no longer enrolled.

Although personnel at the new schools were unfamiliar with Project ALERT and had not participated in the smoking and drug prevention program, they also cooperated in the tracking process. As Table 2 indicates, 83% of the schools called in the fall districts agreed to check their records and of those, 83% said that the student was indeed currently enrolled there. The rest were no longer enrolled, having either moved again or never showed up for class. Only 14% of the new schools refused to verify, and an additional 3% could not be contacted, yielding an overall verification rate of 69%.

Identifying third-party contacts. In addition to asking for available
third-party information on school transfer cards, we also distributed third-party forms to students during the second wave of seventh grade data collection in our four spring districts. These forms asked students to provide the names, addresses and telephone numbers of adult relatives or friends we could contact if they moved. We planned to use third-party information to track students during telephone follow-up only if locating them via their new school or old home proved unsuccessful.

Obtaining useful third-party information was considerably more difficult and less productive than obtaining new-school information. In the four districts where we collected third-party data from students, just 67% of them turned in a form (see Table 3). Of those, only 59% contained information that we judged as very or somewhat likely to enable us to contact a third party by telephone, yielding potentially useful information for only 39% of the spring group of trackees. School transfer cards were even less informative, a finding that reflects variation in school policy about retaining emergency contact information on students who move.

Several factors limited the usefulness of seeking third-party information from students. Many of our trackees had probably moved before the information was requested. In addition, some refused and others had insufficient time to complete the form. Finally, many students at this age do not write clearly and do not know the complete address or telephone number of an adult outside their immediate households. The most useful information came from students who lived with one parent and knew the address of the other one or from students who evidently kept in close touch with a grandparent.
TABLE 3
Quality of Third-Party Information

<table>
<thead>
<tr>
<th>Information Quality</th>
<th>Forms Received (%)a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>32</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>27</td>
</tr>
<tr>
<td>Minimal</td>
<td>41</td>
</tr>
</tbody>
</table>

a. Forms received from students consisted of 67% of the total spring tracking sample.

MAILOUT AND FOLLOW-UP

At the time of the initial mailout we had received and verified new school information for only 27% of the sample. Thus the remaining cases were mailed to the old home address in lieu of waiting for school transfer data.

One week after the initial mailout we sent a reminder card to all the tracking students; two weeks later we sent a second survey to all nonrespondents. These follow-up reminders were sent to the school or home, depending on which one had been used for the first mailout. A fourth nonrespondent mailout occurred when and if we obtained new locating information from the telephone follow-up or incoming student transfer cards. In all, we sent surveys to the new school for 44% of the sample, making this strategy a key component of the overall tracking process.

Four to five weeks after the first mailout we attempted to telephone each nonrespondent (or a family member, relative, or friend). These calls served two purposes: (1) to remind students who had received but not returned the questionnaire about the importance of their participation in the study; and (2) to locate students for whom our original addresses were incorrect.

During the telephone follow-up period we utilized the following methods:

- calling directory assistance using the parent’s name(s) in the city of the last mailing address (school or home) plus its surrounding suburbs and towns;
- dialing the “old home” telephone number from the school master list;
- calling directory assistance in the “old home” city if not already tried;
- calling third parties if listed on the student transfer card or third-party form;
TABLE 4
Where Surveys Were Mailed

<table>
<thead>
<tr>
<th>Mailing Location</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home only</td>
<td>569</td>
<td>54.5</td>
</tr>
<tr>
<td>New school only</td>
<td>254</td>
<td>24.3</td>
</tr>
<tr>
<td>Both school and home</td>
<td>203</td>
<td>19.4</td>
</tr>
<tr>
<td>Not mailed</td>
<td>19</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td>1045</td>
<td>100.0</td>
</tr>
</tbody>
</table>

- trying to locate a relative by dialing people with the same last name in the old and new locations (if five or fewer parties of that name were listed with directory assistance).

The interviewers were instructed to stop calling when they had either contacted the student (or knowledgeable person) or exhausted all possible leads.

WHAT DID TRACKING ACCOMPLISH AND HOW?

Despite the highly mobile profile of our trackees, we succeeded in locating more than 75% of them, obtaining completed surveys from 66% of the total group of 1,045. Before tracking, we had surveys from 80% of the original sample of more than 6,500; after tracking we had surveys from 90% of that sample (see Figure 2.). Hence this effort succeeded in reducing the trackees’ nonresponse rate by two-thirds and cutting the overall attrition rate in half.7

This accomplishment takes on added significance when we consider attrition rates typically recorded by other studies of drug use among adolescents in the United States. Within a year after the initial data collection, studies in New York, Oregon, California, and Colorado had lost between 20% and 33% of the baseline sample compared to the 10% loss we experienced after tracking (Kandel et al., 1976; Biglan et al., 1983; Huba et al., 1979; Josephson and Rosen, 1978).

Moreover, in the absence of tracking we could expect progressively higher rates of attrition over time. Preliminary calculations indicate that about 26% of our students were no longer enrolled in the 30 partici-
pating schools (or their recipient high schools) by grade 9, an increase of at least 70% over the mobility rate for grade 8. Without tracking, therefore, we would expect an attrition rate of 30% to 35% two years after baseline—26% because of relocation plus an additional 5% to 10% attributable to absenteeism and lack of student or parent consent to participate in the evaluation. With tracking, our experience suggests that we can keep sample loss after two years to a more acceptable rate of about 15%.

Which procedures contributed the most to reducing the negative effects of relocation on response rates? In particular, how much of the improvement could we attribute to the new school strategy? To answer these questions we need to examine our location and return rates separately.
TABLE 5
Located Students by Where Survey Was Mailed

<table>
<thead>
<tr>
<th>Mailing Location</th>
<th>No. of Students Tracked</th>
<th>Located Students No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>School only</td>
<td>254</td>
<td>240</td>
<td>94.5</td>
</tr>
<tr>
<td>Home only</td>
<td>569</td>
<td>426</td>
<td>74.9</td>
</tr>
<tr>
<td>Both school and home</td>
<td>203</td>
<td>142</td>
<td>70.0</td>
</tr>
<tr>
<td>Not mailed</td>
<td>19</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>1045</td>
<td>808</td>
<td>77.3</td>
</tr>
</tbody>
</table>

LOCATING THE MOVERS

To assess our ability to find students who moved, we defined those that we were virtually certain had received a mailed survey as located. As Table 5 shows, our location rate of 77.3% would have been considerably lower without the new school strategy: students who were tracked through the school alone were considerably more likely to receive a survey (95%) than those tracked solely through the home address (75%). These figures reflect the greater accuracy of the new school information.

Tracking through the new school alone, we found 23% of the entire sample. In addition, when “late” new school information was used to find students unsuccessfully tracked through the home, it added an additional 11% to the ranks of the located. Overall, we located a total of 34% of the transferes through the new school strategy (see Figure 3). That number accounts for slightly under half (44%) of the students we located.

What proportion of that 34% would not have been found by tracking through the home? We know that the minimum figure is 11%, because this group was unsuccessfully tracked through the home before we mailed to the new school. However, some proportion of the 23% we found by mailing solely to the new school might have been located through the home if we had tried that strategy first. Hence we would like to estimate the marginal effect of the new-school strategy, that is, the location rate using both home and school minus the location rate using home only.

To do that, we would like data on a random or unbiased sample of students whom we first tried to track through the home. Our best
approximation of that sample is a group of 425 students from three spring districts (13 schools) that did not return transfer cards before our initial mailout date. Hence, the decision to track these students through the home first was based on logistical concerns (inadequate time for recording and mailing the transfer cards) rather than a judgment that obtaining useful school transfer data would be less successful for this group. Home tracking succeeded in locating 47% of these students, while tracking through the school after the home had failed succeeded for an additional 22%. Based on this sample, therefore, we estimate the marginal effect of the new-school strategy to be 22%, making it an important component of the overall process, but not one that can stand by itself.
When we ask which techniques helped us locate students through the home, we find that post office updates were the most productive. As Figure 3 shows, post office updates yielded 171 new addresses, or approximately 16% more students who we feel certain received a survey.10 Telephone follow-up trailed further behind because it was used to locate the more difficult cases—those not found through the school or the home. Calling uncovered an address for 6 out of 25 students who were omitted from the initial mailing for lack of any address at all. It also yielded 87 additional mailouts, most of which, but not all, were triggered because we obtained a new address.10 Hence telephone follow-up added a maximum of 9% more students to the located column, considerably fewer than those we found by tracking through the new school or mailing to the old home with a request for a post office update.

Which telephone procedures were the most useful? Of those we attempted, directory assistance in the new city was most likely to result in a successful telephone contact with the student or an immediate family member. As expected, dialing common last names was least likely to yield good leads. Somewhat to our surprise, however, dialing the old home telephone number ranked second as an effective method of locating students. As Figure 3 shows, about 10% of the student transfers had shifted schools without changing their home address. Moreover, 62% of the tracking sample lived with only one of their biological parents at baseline; occasionally calling the old home would reach a relative who told us that the child now lived with the other parent (or another relative) and supplied the new address.

Trying to call third parties was considerably less successful, both because the information we had was scanty and frequently incorrect and because relatives and friends were understandably reluctant to give out information about a child. In addition, third-party contacts were less likely to know about Project ALERT and thus lacked the positive identification with the program and its goals exhibited by parents and school personnel. Nevertheless, a few third parties agreed to forward the survey to the student themselves.

Overall, however, we were unable to obtain a telephone number for 56% of the 520 nonrespondents we attempted to contact by telephone and failed to reach an additional 6% before the field period ended. These figures underscore the substantially greater efficacy of tracking a mobile population by mail. While the 322 students we could not contact by telephone represent almost 30% of the trackees, we actually located 125 of them (39%) by mail. If we had relied solely on telephone interviews for
administering the survey, we would have failed to locate this group, which represents 12% of the total tracking sample, plus an additional proportion of the more than 500 respondents who returned a survey before telephone follow-up began.

**OBTAINING COMPLETED SURVEYS**

Convincing students to return the questionnaire was somewhat easier than finding them. Of those who received a survey 85% mailed it in, exceeding the location rate by 7%.

We suspect that their high level of cooperation reflects how young adolescents react to research: They are likely to view being asked to participate in a research endeavor as novel and to place a relatively high value on the monetary incentive. In addition, all of the trackees had participated in one or two prior Project ALERT surveys, and many had undoubtedly developed a sense of identification with the prevention program and its research component that increased their motivation to participate.

Which tracking techniques brought in the most returns? Once we account for its greater advantage in finding students, mailing to the new school did not outpace mailings to the home in eliciting a response. As Table 6 shows, both methods did equally well when used alone, each yielding an 88% participation rate. Overall, however, mailings to the new school made a significant contribution to the final results, accounting for 43% of the completed surveys—31% from the initial mailout and an additional 12% from a second mailout that followed an unsuccessful attempt through the home (see Table 7). As the early returns were dominated by those initially sent to the student’s school as opposed to his home, mailings to the new school also expedited the tracking process.

Telephone follow-up fared better in reminding students to return the survey than it did in locating them. About 18% of the total returns were directly attributable to telephone reminder calls. Of those we contacted by telephone, 62% later mailed in a survey as compared with 22% of those we could not contact. Moreover, students who said they had already mailed in a survey typically told the truth or quickly made good on their claim: 92% of this group sent in surveys, compared with 50% of those who “promised” to mail it in. Leaving a message when we were unable to speak with the student also produced satisfactory results: 57% of this group returned the survey, suggesting that parental reminders
TABLE 6
Returns from Located Students

<table>
<thead>
<tr>
<th>Mailing Location</th>
<th>No. of Students Located</th>
<th>Returned Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>School only</td>
<td>240</td>
<td>211</td>
</tr>
<tr>
<td>Home only</td>
<td>426</td>
<td>374</td>
</tr>
<tr>
<td>Both school and home</td>
<td>142</td>
<td>102</td>
</tr>
<tr>
<td>Total</td>
<td>808</td>
<td>687</td>
</tr>
</tbody>
</table>

TABLE 7
Returned Surveys by Where Mailed

<table>
<thead>
<tr>
<th>Mailing Location</th>
<th>Returned Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>School only</td>
<td>211</td>
</tr>
<tr>
<td>School later</td>
<td>86</td>
</tr>
<tr>
<td>Home only</td>
<td>374</td>
</tr>
<tr>
<td>Home later</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>687</td>
</tr>
</tbody>
</table>

stimulate slightly more young adolescents to cooperate with a research effort than their own promises.  

SUMMARY AND DISCUSSION

As this study has shown, tracking student transfers can have a substantial impact on increasing response rates: It cut nonresponse attributable to between-school mobility by two-thirds and reduced the overall attrition rate by one-half. A significant proportion of that improvement was directly attributable to the strategy of seeking information about the school to which the student had transferred and, where successful, mailing the survey to the new school rather than the student's old home.
Designed to mitigate the special problems associated with locating a highly mobile group of young adolescents, this approach fulfilled its promise. Mailings to the new school accounted for 44% of the located transferees and 43% of the completed surveys. A critical component of its success involved the decision to mail the survey to the new school rather than ask school officials to give us the student's new home address. This decision reduced the burden on school personnel and avoided asking them for information that many would not have felt justified in giving out. Routing the survey to the student had the additional advantage of leaving the decision to complete it and to write in a new address up to the student himself.

The new-school strategy was particularly helpful in locating student transferees, 90% of whom no longer lived at the last known home address when the tracking process began. While forwarded surveys and telephone calls aimed at obtaining new addresses enabled us to locate 33% of the tracking sample, mailings to the new school doubled that rate.

The constraints we experienced in locating these students through traditional techniques probably reflects several characteristics of highly mobile families—a higher frequency of multiple moves within a short time, and, therefore, out-of-date forwarding addresses, a lower propensity to leave forwarding addresses, and a lower probability of having same-name relatives in the old city who might know the new address. Even with the new school strategy, we were less likely to locate students whose family backgrounds suggest a higher likelihood of frequent moving—minority students, those from disrupted families, and those whose parents have limited educational credentials and thus a higher likelihood of job insecurity. Thus tracing these adolescents through the school helped overcome, but did not totally erase, the limitations of telephone and post-office tracking in finding a highly mobile population.

When we did locate students, however, those with a higher mobility profile were not less likely to return a survey. Minority status and parental education did not have a significant dampening effect on return rates among the located group, but higher rates of absenteeism and having experimented with marijuana did.12

Thus the impact of tracking movers on reducing attrition bias in drug use research among young adolescents may be conditional on its success at two distinct stages of the process: (1) finding a set of students whose "at-risk" status reflects a highly mobile family profile; and (2) obtaining surveys from students whose "at-risk" status also reflects additional
individual attributes (in our case, absenteeism and prior marijuana use). By substantially improving our ability to locate students in the first category, the new-school strategy had a ripple effect through both stages.

NOTES

1. Data about enrolled eighth graders were obtained by administering surveys in the participating schools.
2. Several factors made a telephone survey unattractive. Obtaining home telephone numbers through directory assistance would be difficult, as we did not have new home addresses; households that have recently been relocated or that are moved frequently may not yet have telephones; and we could not conduct telephone interviews via the new school.
3. Information on calls to spring schools is not included in Table 2, since these schools were not called systematically. However, for the calls we were able to make, enrollment verification was about 65%, just slightly lower than the rate for the fall group.
4. Third-party forms were not distributed in the fall districts at the time of Wave 2 data collection in these districts because we had not yet decided to track students who had moved.
5. A very likely judgment meant that all information requested was supplied in legible writing; a somewhat likely judgment meant that the legible information included either a complete address or a name, relationship, city, and telephone number.
6. As the form was distributed at the end of a classroom session in which students filled out the Project ALERT survey and contributed a saliva sample, time constraints were a very real probability.
7. The 10% from whom we ultimately failed to obtain surveys breaks down into the following categories: student transfers out of participating schools (5%), absences (3.5%), and parent or student refusals to participate after baseline (1.5%).
8. This group included the following cases: The survey was completed; the respondent refused; the new school verified enrollment and said it would deliver the survey; a home telephone call indicated that the survey had been received; a home telephone call verified the new address and the questionnaire was remailed; the post office forwarded the questionnaire; and that the information operator had verified that there was a person with that surname at the location whether or not contact could be made.
9. This estimate may be somewhat conservative, as a few surveys could have been forwarded without sending us an update.
10. Some of the "remails" were just that, requests to send another survey to the original address because the first one had been lost or misplaced.
11. Some students who say they will return the survey may substitute the "promise" for a direct refusal. In future tracking efforts, we plan to evaluate the efficacy of sending postcard reminders to students who promise to mail in the survey.
12. Males and children from disrupted families were also less likely to participate, but the differences were not significant at the .05 level.
REFERENCES


Phyllis L. Ellickson is a Senior Behavioral Scientist in the Behavioral Science Department at the Rand Corporation.

Domenica Bianca and Diane C. Schoeff are Associate Survey Analysts in the Behavioral Science Department at the Rand Corporation.