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ABSTRACT

A three-week research project in a high-school behavioral science class is described. The design of the classroom sessions is described in detail to help other teachers use or adapt it to their own situation. Three benefits to the students of such a project are cited: (1) appreciation of methods behind research conclusions and heightened critical awareness as consumers of research findings, (2) involvement in a work experience which could become a career or some aspect of a career, and (3) shattering of the "egocentric fantasy" through empirical testing of their assumptions about reality. General issues about conducting the project are explored, including scheduling during the course, permissions for students to interact with groups within or outside the school, and evaluation. Project sessions occur during two or three weeks with five class periods a week of 45 minutes each. Steps which can be followed in organizing a research project are given. The focus of the first week is on establishing interest and rapport among student groups, choosing a topic, and developing hypotheses. Development of a survey, selection of a sample and the survey method, practice administration of the questionnaire, and actual administration and data collection occur during the second week. In the third week, students tabulate data, create summary matrices, draw conclusions, summarize and distribute results, and evaluate the project as a learning experience. (Author/AV)

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Helping Students Do Research:

How To Do a Survey in a Behavioral Science Course

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Helping Students Do Research:

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An interesting project can provide a change of pace from lecturing for teachers and step up the tempo of student activity and involvement. Some believe that activity heightens motivation and creates a setting in which students learn more. Our experience with two groups of students who participated in the development of a survey research project was that they believed they had learned more than students who learned the same material by a more traditional and passive method.

This article will describe a three week project in a high school Behavioral Science class with students who were a cross section of the abilities present in a blue collar suburb of an eastern city. Our purpose is to present the design of the classroom sessions in enough detail that other teachers can use or adapt it to their own situation. We will also describe what we learned and what we learned to avoid.

What benefits can teachers expect for their students if they plan such a project? We suggest three important values. Carrying through a complete research project involves students in the process of science in a way which reading about it can never do. It will give them a greater appreciation of the methods behind the conclusions which they read about and should enable them to become more critical and informed consumers of research findings. Since many opinions in our country are molded by research reports, polls, etc., this type of education is useful in the development of a more sophisticated citizenry.

A second value which such a project may have for students is to provide a live experience doing work which could become a career or some aspect of a career. Doing research as a social scientist, managing data in computer systems, being a consumer of research, are all skills which are found in a number of different occupations. An experience of this kind may help students to decide on the basis of first hand experience whether they enjoy some of these processes.

A third value which is particularly appropriate for adolescents can be an experience which we will call the shattering of the "egocentric fantasy" (Elkind, 1967). When students create hypotheses, they are often projecting their inner reality onto the world outside them. When they collect data, they have an empirical test of whether their own assumptions about reality are borne out. Thus, they are not only positioned for self-correction but also for learning that there may be some reason to be wary about asserting that others see the world the way they do.

In the sections which follow we will present an outline of the steps which can be followed in organizing a survey research project in a Behavioral Science class. Although tailored for the general high school student, the plan can be easily adapted for the college student. The project may be organized either for two or three weeks assuming 5 class periods a week of about 45 minutes in length. Before presenting the detailed plan in chart form with accompanying explanatory text, several general issues about the conduct of such a project require discussion.

First is the question of student evaluation. Having run this project several times on a non-evaluative basis in a classroom in which course grades were given, we recommend that the evaluative structure for the research project be congruent with that of the course in which it is embedded. The teacher

might give an examination after the project is over, ask students to write up a report, assess participation in the project, etc. If the course is not graded, the project should adhere to the same standards.

Second, teachers who engage in a project of this nature need to anticipate potential problems with the environment outside of their classroom. For example, any data collection procedure in a high school will need the approval of the principal. Data collection outside the high school may need approval of the principal and/or the superintendent of schools. Persons in roles which interact with the public will be particularly conscious of the effects of questions put to the public. If teachers and students proposing the project consider its outside impact during the development of the survey, they may save delays caused by these concerns. In addition, we now live in a period of heightened ethical sensitivity about the rights of persons who participate in Behavioral Science research (American Psychologist, 1973). Persons who are asked to participate need to understand what they are being asked to do and agree voluntarily before a survey is administered. The need for "informed consent" is particularly important in classroom situations where students may not feel they have the option to refuse to participate. Questions presented should be scrutinized from the point of view of "invasion of privacy" issues and every care should be taken to insure confidentiality.

Third, the model for this experience has one teacher organizing a class of 20-30 young people into smaller task groups of 5-6 for some of the work. The teacher needs to assess the capacity of the class to work in this way. She may wish to appoint stronger students chairpersons of each group or arrange for the help of a student-teacher, aide, or parent to extend her capacity to work with the smaller groups if she feels that the class will need more supervision than she can give.

Fourth, we suggest that the project occur duri ther than at the beginning of the course. This will permit the teac to do some preparatory work on research methods and other issues in research.

Finally, the teacher will find it useful to have some references about research available to her. A number of exercises and suggested readings in this project are taken from A Student's Guide to Conducting Social Science Research (Bunker, Pearlson, and Schulz, 1975), which was developed working with high school students in projects similar to the one described here. References at the end of this article may also be used as sources of readings and supplementary resources.

The text which follows is designed to be read parallel with the daily outline chart (Tables 1-3). The chart details the objectives, necessary preparation and time schedule for each class. We will comment in the text on problems and procedures which need additional explication.

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Insert Table 1 about here

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Week 1

An important goal of the first day is to create a comfortable atmosphere for small group interaction among the students. If possible, try to assign some energetic students to each small group, as the groups will be functioning autonomously much of the time unless the teacher has extra help.

On the second day, attention is focused on helping students distinguish questions which can be answered by doing research from those which cannot. Some characteristics of non-researchable questions are that: 1) they are too general or abstract, e.g., "What is love?", 2) the data is inaccessible

for ethical or practical reasons, e.g., "Are high school students in Japan different in their attitudes toward drugs than American Students?", 3) they are too value-laden or emotional, e.g., "Are the girls who run for elected office in this school unfeminine, aggressive and pushy?", and 4) they make implicit assumptions, e.g., "Who dug the Grand Canyon?". Researchable questions, on the other hand, are interesting, non-trivial, and don't have the preceding deficits. Some examples of researchable questions would be: 1) "If people are observed while they are studying, does it affect their studying?" 2) "Does participation in extra-curricular activities affect students' grades?" 3) "When people see a stranger in need of help, what will they do?"

The thrust of the third day is to develop interest in and commitment to a topic. Requiring each student to generate three topics on paper is more effective than asking students to volunteer topic ideas in a general session where less verbal students remain silent. Not all students, of course will come up with three topics. As students describe their topics, the teacher will need to edit and combine them as she writes them on the board. Allowing the students to discuss further extensions of their topics as they hear other students' ideas can generate interest and enthusiasm for a topic. Thus the teacher's role is to help shape the students' ideas into several interesting topics.

After the topic is selected on the fourth day the class turns to generating hypotheses, a potentially difficult task because it requires very precise thinking. The teacher will need to do some personal preparation and also have some sample hypotheses generated for each of the potential topics. A common error in hypothesis generation is to take a very general question and

call it an hypothesis, i.e., "The severity of the initiation into a group will affect the initiate's attraction toward the group." A correctly stated hypothesis is more precise and testable, i.e., "The more severe the initiation, the more the initiate will find the group attractive." Another correctly stated hypothesis would be: "Persons with low self-esteem will be more attracted to a group after a severe initiation but persons with high self-esteem will be less attracted."

One additional potential difficulty on the fourth day is a loss of interest by students whose favorite topic was not chosen. Appealing to their resourcefulness in making the topic exciting during the hypothesis generating phase is one way to deal with this problem.

On the fifth day, the teacher can use her ingenuity by developing interesting subtopics for the chosen topic beforehand and by preparing discussion questions for each subtopic to stimulate thought about the hypotheses. For example, some subtopics on the topic of alcohol might be: 1) usage, 2) relationship between alcohol and pot. Questions the teacher might ask the students to discuss would be: 1) "Who are the users?" (age, sex, socio-economic level), 2) "What, if any, is the relationship between alcohol use and marijuana use?" The students will have opinions on these questions which they can turn into hypotheses, e.g. "Those who are heavy drinkers will also be heavy smokers."

The first week is primarily concerned with establishing interest and rapport, choosing a topic, and developing hypotheses about the topic. If the teacher wants to run the survey in two rather than three weeks, she should create two or three interesting topics with specific hypotheses. These would be discussed and a topic selected by vote of the class. Then the project would proceed beginning with the second week.

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Insert Table 2 about here

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Week II

The sixth day marks a shift into specific preparation of the survey; the sample is chosen and the questions for the survey instrument are generated. Before selecting a sample, students need to understand certain concepts, especially random sampling. Randomization can be demonstrated by picking five students' names from a hat containing all the names in the class. Since each student has an equal chance of being selected, the class can consider whether their "sample" is representative of the general characteristics of the class, e.g., sex, race, class standing. Sometimes it is difficult to get a true random sample within the practical constraints of time and effort. If so, a convenient sample to use may be required classes since they often contain a good cross section of students, thus approximating a random sample. Or, students may wish to sample at specific places such as the cafeteria or a shopping mall.

When generating questions for the survey, there is a temptation to invert hypotheses. For example, if the hypothesis is "More men than women smoke pot," it would be incorrect to have a survey question reading: "Do more men than women smoke pot?" To get the desired answer, two questions would be necessary: "I ___do ___do not smoke pot." and "I am (check one) ___male ___female."

A final word of caution: Try to keep the length of the survey to ten questions in addition to the demographic data (e.g., age, sex, occupation, etc.) if possible, in order to simplify data analysis and to make administering the questionnaire easier.

Some difficulties which may be encountered in writing questions on the seventh day are ambiguity, type of scale to use (Selltiz, Jahoda, Deutsch, & Cook, 1959, or Bunker, et al., 1975), ethics and bias. An example of a biased question would be: "Do you think women should go to work and neglect their children?" An ambiguous question would be: "Do you and all your friends smoke pot?" An example of an unethical question would be: "Are teachers in this school having extramarital affairs?"

The secord part of the seventh day is devoted to pretesting. Any survey instrument should be tried out first in order to get out the "bugs." A convenient way to pretest is to have pairs from each small group choose another pair from another group and pretest their questions on each other. Some questions which might be asked during pretesting are: "Did you have any difficulty understanding the questions?" "How did you interpret this question?" "Do you have any suggestions for making this question clearer?"

The eighth day is the point at which the final questionnaire is edited. Final editing will necessarily have to be done after school. The teacher can get a small committee together to help with this task or do the job herself.

During the ninth day, rehearsals of administering the survey are conducted. The form the rehearsal takes depends, of course, on where the survey will be conducted as well as on how many students will be participating. If only a few students are involved, they can rehearse in front of the class. If all will participate, rehearsals can occur in the small groups. The rehearsals can be exciting and get everyone into the spirit of the survey. We found that pairs of students work well as administrators, with one of the pair in charge and the other going along for "moral support."

The script that will be rehearsed might include 1) an introduction which includes what the survey is about and who is conducting it, 2) a request to read the instructions carefully and to answer all the questions, 3) an assurance of confidentiality, and 4) a description of how the results of the survey will be made available to the participants.

It is important to plan the tenth day carefully. If classes are to be surveyed, teachers' names and room numbers along with the teams assigned to them should be written on the board before class. If, on the other hand, the students decided to survey at some other site, that will need careful pre-planning as well.

Predictions are made, at this point, to help students become aware of the "egocentric fantasy" and to make the results more relevant and interesting when they do become known by allowing for a comparison between the students' predictions and the actual findings. The predictions can be made on blank questionnaires as the teacher gives carefully prepared reworded instructions. For example, if the question on the survey is "How often do you smoke pot? ___never ___occasionally ___once or twice a week ___daily", the prediction instruction would be "What percent of the people will select each category? Distribute percentages so that they add up to 100%."

As the survey administration is completed, it is important that the questionnaires be identified with a subject number immediately so that no data will be lost due to carelessness. A numbering system should be decided before the questionnaires are returned, e.g.:

Junior girls: 301-350 Junior boys: 401-450

Senior girls: 351-399 Senior boys: 451-499

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Insert Table 3 about here

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Week III

The tabulation of the data, which occurs on the eleventh day requires, perhaps more than any other part of the process, an emphasis on precision and care on the part of the students. At this point an extra assistant, if available, can be extremely useful to help manage materials and supervise. Converting the data from the actual survey questionnaires to a form that will be more amenable to further analysis requires great accuracy, but is also, unfortunately, more dull and tedious than most other steps in the project. A number of precautions may prove useful in avoiding potential pitfalls.

Explain the master coding sheet before entering any data to make sure students, who will be working in pairs, really understand the different types of questions which require different types of coded responses. Familiarize yourself with the Survey Coding Form in Figure I. If the survey is longer than one page and it is necessary to separate the pages to facilitate a division of labor, make sure that each page has the student code number on it. The questionnaire numbers should be double-checked with the row numbers to make sure that the right data is being entered in each row (and, of course, use rulers to ensure coding on the right line). Boredom may be somewhat alleviated by switching reading and recording roles midway through the tabulation. Students can devise their own techniques to check for errors; original coding in pencil makes error correction easier. While it may be tempting, do not allow students to take any of the data home to complete the task. If it is lost or damaged, it cannot be replaced.

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Insert Figure I about here

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This is also the logical place to make decisions about which categories will constitute the most relevant comparisons to be made. For example, for a given question, does it make more sense to break down the data in terms of male and female responses, or high and low academic scorers, or to examine the sample population as a whole?

Transferring the data from the master coding sheets to the summary matrices confuses some students at the outset. Therefore, an extra assistant would also be helpful on the twelfth day. A trial run on a sample matrix such as the one in Figure 2 will eliminate much of the confusion. We recommend that one or two model transformations be done with the entire class first, before pairs of students convert the actual data. Then, have students draw a tentative conclusion based on "eye-balling" the matrix data and write it down. It is an exciting learning experience for them to compare these initial cursory predictions with the results uncovered in the subsequent analysis.

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Insert Figure 2 about here

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Additional computations will be necessary outside of class. Scaling questions (e.g., "Rate your anxiety level on the following scale.") are best handled by computing means. It should always be made completely clear whether the numbers you are dealing with represent absolute scores or percentages or means. Students tend to confuse these concepts. The extent to which the actual calculations are done by hand or computer, by teacher or by students, in or out of class will depend upon accessibility to appropriate facilities, sophistication of students, and time contingencies (see Bunker, Pearlson, and Schulz, 1975, 50-59).

At the summary stage on the thirteenth day, students will finally discover the results of their inquiry. However, there is often more data than can be digested easily. To prevent data overload, the teacher can have students decide upon their priorities, so that those areas of the survey that interest them most are made available to them first. This can best be done by giving the students a blank form of the survey itself, and letting them ask for the data from the questions that interest them most. Checking against the original hypotheses also provides a rationale for selectivity. Subsequent discussion can address itself to verification of predictions, unexpected findings and how to account for them, and the danger of over-generalizing the data to populations not representative of the survey sample. For example, findings from high school seniors are not necessarily applicable to suburban housewives. With the vision of hindsight, students may even discover that some of their survey questions were not really valid tests for the information they were seeking.

The task of summarizing the results of the survey in written form, which occurs on the fourteenth day, can be subdivided into writing tasks that correspond to the number of writing teams desired. (We found 2-3 students a feasible number.) Having teams select their particular task from a hat can be a useful time-saving gimmick. When initially devising the writing tasks, care should be taken to ensure an equitable division of labor in terms of task length and complexity. It may even be feasible to have more than one team work on the same task.

In preparing their summaries, students need to be reminded of the importance of accuracy and conciseness. The teacher should be aware that she will probably have the ultimate job of editing and will have to organize the various written assignments in a reasonable manner.

On the fifteenth day, final details will be attended to and loose ends tied up. One such task is the distribution of data. A variety of procedures can be considered, e.g., school publications (newspapers and magazines), mailings, postings on bulletin boards, summary sheets that are available in the main office. Students may merely wish to read the survey results to the target population, if an in-school, classroom sample was used. If this latter technique is chosen, a dress-rehearsal in front of the class may aid the actual presentation to go more smoothly.

Whether or not specific hypotheses have been confirmed, some of the values discussed at the beginning of this article should have been realized. Teachers may wish to make these additional learnings salient for students by discussing with them changes in their understanding of the social science research process, their reactions to these methods as they consider potential careers for themselves, and what they learned about their own views of the subject studied compared with the survey results. Hopefully, learnings from such a project can be extended during the remainder of the course and will increase their appreciation of Behavioral Science.

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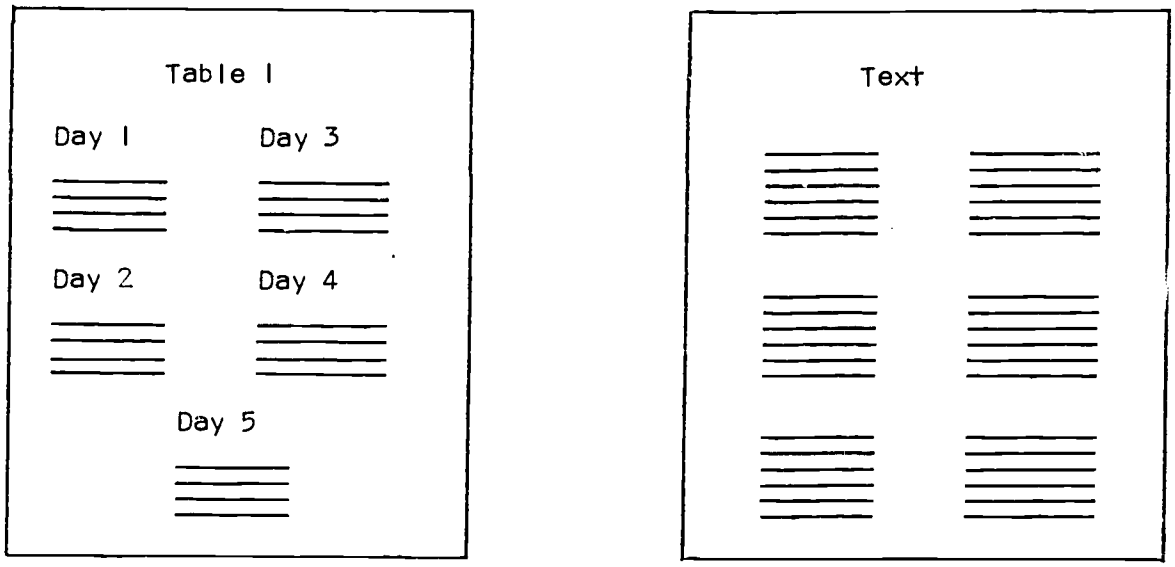
Note About Tables 1, 2, and 3

It is the intention of the authors that in any published version, these tables would be drafted and reduced so that they would occupy one side of a page with text on the opposite page roughly as follows:



Since consultation with the editor was deemed advisable before having the tables drafted, they appear here in another form.

Survey Project, Week 1.

Day 1. Objectives:

Introduce research in social science.

Develop interest in doing a survey.

Develop ease in working in small groups.

Teacher Preparation: Prepare project schedule, assign students to groups.

Materials: Have available for browsing copies of Psychology Today and other social science materials.

Schedule: 5 min. - Overview project and purposes.

10 min. - Discussion: What is Psychology? What does it study? Examples.

10 min. - The Method of Psychology: Research. Discussion of students' experience with research (surveys, classes).

5 min. - Distribute Research Guide. Introduce and make Homework assignment.

15 min. - Small groups discuss issues they might be interested in investigating in their project.

Homework: Research Guide, pp. 65-72.

Day 2. Objectives:

Help students begin to discriminate what types of questions can be answered empirically.

Practice generating researchable questions.

Teacher Preparation: Prepare questions about homework assignment; prepare lists of questions, one for in-class and one for homework assignment (see text).

Materials: 2 sets of questions, one set for each student.

Schedule: 5 min. - Discuss reading assignment.

20 min. - Discussion: What is a researchable (empirical) question? Distribute lists. Students check those that are researchable. Take yes-no vote on each. Develop a typology of non-empirical questions (see text).

20 min. - Practice developing researchable questions. Small groups select a site where researchable questions might be investigated, e.g., the cafeteria, local student hang-out, local service station, etc., and develop questions.

Homework: List of questions which students evaluate as to researchability. Copy of Psychology Today for browsing.

Day 3. Objectives:

Develop possible topics to be the basis of a survey.

Develop commitment and interest in the survey topic.

Teacher Preparation: Prepare some ideas for topics in advance to stimulate reactions and further thinking.

Materials: Psychology Today as stimulus material for topic generating.

Schedule: 10 min. - Small groups discuss their homework, report views in general session led by teacher.

5 min. - Teacher presents ideas on possible topics, pro's and con's.

5 min. - Students think silently about topics they find interesting (can use magazines here), develop 3 which they like.

5 min. - Write all suggested topics on blackboard.

20 min. - Groups discuss topics on the board. Which are most interesting? Do-able? Voting: Everyone picks their 2 or 3 most favored topics.

Homework: None.

Day 4. Objectives:

Select a topic and begin to develop hypotheses.

Identify sub-areas of the topic to be investigated.

Teacher Preparation: Review section in Research Guide on hypothesis generation (pp. 13-15). Prepare brief lecture. Post 3-5 topics on the board with highest votes from yesterday.

Materials: Ballot slips.

Schedule: 15 min. - Discuss each of the most selected topics. What could be studied? How hard or easy? Pro's and con's, etc. Vote by secret ballot for one. If votes are close, re-vote between top two topics.

10 min. - "What is an hypothesis?" Presentation (with examples) and discussion.

20 min. - Exercise on hypothesis generation (Research Guide, p. 118) or practice generating and critiquing hypotheses in small groups.

Homework: None.

Day 5. Objectives:

Identify the major hypotheses of the survey.

Teacher Preparation: Develop ideas about major researchable subtopics. Prepare questions for group discussion.

Materials: None.

Schedule: 15 min. - Small group discussion of the substantive issues in topic selected.

15 min. - Small groups develop 2-3 hypotheses that they are interested in testing in survey.

15 min. - Discussion and decision about how much ground to cover, and final selection of hypotheses.

Homework: Research Guide, pp. 72-83.

Table 2.

Survey Project, Week II.

Day 6. Objectives:

Generate survey questions to test hypotheses.

Select sample and survey method.

Teacher Preparation: Edit and duplicate hypotheses. Prepare questions on homework.

Materials: Lists of hypotheses.

Schedule: 10 min. - Discuss research article (homework).

20 min. - Random sampling exercise (see text). Select target population. Select sampling method.

15 min. - Hand out hypotheses in small groups. Individuals write questions on any or all of the hypotheses. Teacher collects questions.

Homework: Research Guide, pp. 25-40.

Day 7. Objectives:

Rewrite and refine survey questions.

Experience pretesting questions.

Teacher Preparation: Go over survey questions. Identify difficulties.

Materials: Survey questions for each student.

Schedule: 10 min. - Discuss difficulties in writing survey questions. Review Research Guide assignment.

15 min. - Students pretest their questions with students from another group.

10 min. - Small groups revise their questions and discuss pretest experience.

Homework: Students pretest other students or representatives of target population.

Day 8. Objectives:

Review and polish survey questions to obtain semi-final version.

Teacher Preparation: None.

Materials: None.

Schedule: 5 min. - Give homework assignment.
20 min. - Small groups discuss last night's pretest experiences. Revise and further refine questions. Groups write their revised questions on the board.
20 min. - Class reviews each group's questions. A student writes corrected questions on a card for the teacher.

Homework: Research Guide, pp. 44-50.

Day 9. Objectives:
Dress rehearse administration of questionnaire.
Final preparation for data collection.

Teacher Preparation: Final editing of the questionnaire. Typing and duplication of questionnaire.

Materials: Final questionnaire.

Schedule: 20 min. - Class critique of questionnaire. Announcement of arrangements for collecting data. Organize survey administration.
25 min. - Decide who will administer survey. Write script. Role playing rehearsal.

Homework: Data collection if not doing an in-school sample.

Day 10. Objectives:
Administer survey.
Manage data collection.

Teacher Preparation: Have more final copies of questionnaires duplicated. Prepare instructions for making predictions (see text). Prepare numbering system.

Materials: Questionnaire--one for each subject, two for each member of the class. Instructions for making predictions.

Schedule: 20 min. - Students collect data in assigned locations. Remaining students make predictions.
15 min. - Returning students make predictions. Remaining students number questionnaires.
10 min. - All students look over completed surveys.

Homework: Review pp. 44-50 and chart on p. 47 of Research Guide.

Table 3.

Survey Project, Week III.

Day 11. Objectives.

Introduce students to data tabulation.

Teacher Preparation: Prepare tabulation sheets with major headings. Decide ahead of time how questionnaires will be divided among students.

Materials: Standard data recording forms or large sheets of lined paper (see Fig. 1). Numbered survey questionnaires. Pencils, straight edge.

Schedule: 15 min. - Detailed procedural instructions (see text) and emphasis on need for precision.
30 min. - Data tabulation.

Homework: Research Guide, pp. 50-56.

Day 12. Objectives:

Transfer data to summary matrices.

Demonstrate that a large amount of data can be reduced to a succinct form.

Draw first tentative conclusions.

Teacher Preparation: Setting up matrix forms to correspond to each question on survey.

Materials: Matrix forms (see Fig. 2). Pencils. Completed and double-checked master coding forms (with all columns and sub-columns totalled).

Schedule: 10-15 min. - Explain matrix forms and demonstrate to entire class how data is transferred from master coding sheets to matrix.
25 min. - Transfer data to matrices (work in pairs).
5 min. - Eye-balling data on matrices to generate tentative conclusions. Students write these initial reactions on back of matrices for later comparisons.

Homework: Special committee computes relevant calculations (percentages, means, etc.) from matrices.

Day 13. Objectives:

Clear up misconceptions from initial impressions of data.
Present summary of results in meaningful and understandable form.
Determine when a set of data can be said to confirm a given hypothesis.

Teacher Preparation: None.

Materials: Filled-in summary matrices. Blank survey forms. Hand calculators (if this step has not already been performed outside of class by teachers and/or a special committee of students). List of hypotheses for each student.

Schedule: 10 min. - Compare actual percentages with matrices. Discuss misconceptions.
15 min. - Each student fills in percentages on blank survey form (includes sub-group break-downs, e.g., male-female). Discussion.
20 min. - Decide in small groups which hypotheses have been confirmed. Teacher lists hypotheses and class reaches conclusions as groups report.

Homework: Research Guide, pp. 58-59.

Day 14. Objectives:

Produce a clear and concise written summary of survey results.

Teacher Preparation: Make up list of writing tasks to correspond to the number of writing teams desired.

Materials: Survey forms with summary data. Writing tasks--each one on index card.

Schedule: 10 min. - Discuss class responsibility for making findings available. Select media.
10 min. - Discuss criteria (see text) for well-written summary.
15-20 min. - Writing teams select assignments and compose summaries.
5 min. - Groups compare and react to each other's products.

Homework: Review of procedures throughout the survey experience. What seemed most valuable, and what ought to be done differently in future surveys.

Day 15. Objectives:

Distribute study results (depending on type of sample chosen).
Evaluate the effectiveness of the survey as a learning experience.
Determine how students' views have broadened regarding the particular topic of the survey.

Teacher Preparation: Have multiple copies of summary of results ready for distribution (sufficient number for class and target).
Prepare recommendations for ways to feed back information to sample population.
Decide what evaluation format is desired.

Materials: Final form of summary results. Blank survey forms.

Schedule: 10 min. - Distribution and reading of final summary results in class.
15 min. - Students take results to respondents in sample, or plan how to get information disseminated.
20 min. - Loose ends. Evaluation of survey project (written and/or oral).

Homework: None.

Survey Attitudes Toward Alcohol Use in High School

Coders' names: _____

Date: _____

Subject Number	Quest. 1: Do drink? Yes	No	No op.	Quest. 2: How often? (Scale: 1=never, 5=often)	Quest. 3: "Like best" (Rank order) Beer	Wine	Hard	Pop
Males								
401	1			5	4	1	3	2
402		1		3	1	3	2	4
403	1			3	1	4	2	3
404			1	2	4	3	2	1
etc.								
Sub-total								
Females								
301								
302								
303								
304								
etc.								
Sub-total								
Grand Total								

Figure 1:

Survey Coding Form

Question #2:
Should coaches discipline athletes for drinking outside of school?

Grade Point Average			Males			Females		
			Yes	No	No opinion	Yes	No	No opinion
Juniors		Hi	2	4	1	3	14	3
		Lo	4	7	5	1	12	8
		sub-total	6	11	6	4	26	11
Seniors		Hi	5	6	4	3	8	3
		Lo	9	8	1	0	9	0
		sub-total	14	14	5	3	17	3
		Total	20	35	11	7	43	14

	Yes	No	No opinion
Grand Total	27 or 21%	78 or 60%	25 or 19%

Total Students = 130

Figure 2:

Summary Matrix

END

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Since consultation with the editor was deemed advisable before having the tables drafted, they appear here in another form.

Help students begin to discriminate what types of questions can be answered empirically.

Practice generating researchable questions.

Teacher Preparation: Prepare questions about homework assignment; prepare lists of questions, one for in-class and one for homework assignment (see text).

Materials: 2 sets of questions, one set for each student.

Schedule: 5 min. - Discuss reading assignment.

20 min. - Discussion: What is a researchable (empirical) question? Distribute lists. Students check those that are researchable. Take yes-no vote on each. Develop a typology of non-empirical questions (see text).

20 min. - Practice developing researchable questions. Small groups select a site where researchable questions might be investigated, e.g., the cafeteria, local student hang-out, local service station, etc., and develop questions.

Day 4. Objectives:

Select a topic and begin to develop hypotheses.

Identify sub-areas of the topic to be investigated.

Teacher Preparation: Review section in Research Guide on hypothesis generation (pp. 13-15). Prepare brief lecture. Post 3-5 topics on the board with highest votes from yesterday.

Materials: Ballot slips.

Schedule: 15 min. - Discuss each of the most selected topics. What could be studied? How hard or easy? Pro's and con's, etc. Vote by secret ballot for one. If votes are close, re-vote between top two topics.

10 min. - "What is an hypothesis?" Presentation (with examples) and discussion.

Experience pretesting questions.

Teacher Preparation: Go over survey questions. Identify difficulties.

Materials: Survey questions for each student.

Schedule: 10 min. - Discuss difficulties in writing survey questions. Review Research Guide assignment.

15 min. - Students pretest their questions with students from another group.

10 min. - Small groups revise their questions and discuss pretest experience.

Homework: Students pretest other students or representatives of target population.

Day 8. Objectives:

Review and polish survey questions to obtain semi-final version.

Teacher Preparation: None.

Materials: None.

Homework: Data collection if not going on in school sample.

Day 10. Objectives:

Administer survey.

Manage data collection.

Teacher Preparation: Have more final copies of questionnaires duplicated. Prepare instructions for making predictions (see text). Prepare numbering system.

Materials: Questionnaire--one for each subject, two for each member of the class. Instructions for making predictions.

Schedule: 20 min. - Students collect data in assigned locations. Remaining students make predictions.

15 min. - Returning students make predictions. Remaining students number questionnaires.

10 min. - All students look over completed surveys.

Homework: Review pp. 44-50 and chart on p. 47 of Research Guide.

Teacher Preparation: Setting up matrix forms to correspond to each question on survey.

Materials: Matrix forms (see Fig. 2). Pencils. Completed and double-checked master coding forms (with all columns and sub-columns totalled).

Schedule: 10-15 min. - Explain matrix forms and demonstrate to entire class how data is transferred from master coding sheets to matrix.

25 min. - Transfer data to matrices (work in pairs).

5 min. - Eye-balling data on matrices to generate tentative conclusions. Students write these initial reactions on back of matrices for later comparisons.

Homework: Special committee computes relevant calculations (percentages, means, etc.) from matrices.

Homework: Research Guide, pp. 58-59.

Day 14. Objectives:

Produce a clear and concise written summary of survey results.

Teacher Preparation: Make up list of writing tasks to correspond to the number of writing teams desired.

Materials: Survey forms with summary data. Writing tasks--each one on index card.

Schedule: 10 min. - Discuss class responsibility for making findings available. Select media.

10 min. - Discuss criteria (see text) for well-written summary.

15-20 min. - Writing teams select assignments and compose summaries.

5 min. - Groups compare and react to each other's products.

Homework: Review of procedures throughout the survey experience. What seemed most valuable, and what ought to be done differently in future surveys.

Homework: None.

303 304 etc.								
Sub-total								
Grand Total								

Figure 1:

Survey Coding Form