

**READING AND WRITING ABOUT
EVENTS AS THEY HAPPEN:
OBSERVATION IN THE SOCIAL AND
NATURAL SCIENCES**

For a researcher studying events happening today, the problem is to focus attention on only a limited kind and amount of data from the infinity of material available. Selection of data is based on the question being researched. To make order of the potential chaos inherent in observational studies, social and natural sciences have developed general procedures for focusing and presenting finding, thus limiting the attention of both researchers and readers to narrow, testable subjects. Both general guidelines and their many variations are presented and discussed to reveal their advantages and disadvantages.

Collecting Data As Events Unfold

Many disciplines investigate what is happening not in order to establish general processes and patterns of events as well as to record unique new events. The social and behavioral sciences consider how individuals behave as individuals (psychology), as a part of groups (sociology), as a part of cultures (anthropology), in relation to governments and other political institutions (political science), and with respect to material and financial goods (economics). These fields describe how people behave in various circumstances; what people actually do provides the ultimate test of the descriptions. Related disciplines such as management, counseling, and social work apply the general findings of the social and behavioral sciences to practical situations. Again, these applied disciplines test their prescriptions against actual behavior in specific situations.

Natural sciences studying large uncontrollable physical phenomena such as astronomy, meteorology, and the geology of earthquakes and volcanoes must collect data as the events unfold. Researchers cannot stop an exploding volcano or a rapidly expanding distant supernova to run experiments on it. In some ways journalistic reporting is like watching exploding volcanoes. Current events can't be controlled or stopped; you just have to collect as much data of the right kind as you can while events occur.

By experiments, both natural and social sciences often can control and design the events researchers study. Thus psychology as a discipline is sometimes observational and sometimes experimental, as are biology, physics, and sociology. Even applied fields like management, counseling, and education have both experimental and observational branches. In this chapter we consider only the observational branches of these fields. Chapter 15, "Reading and Writing About Designed Events," examines the experimental branches.

Advantages and Disadvantages of Unlimited Data

Obtaining evidence as events unfold presents special problems. You have the advantage of being able to gather as much data as you want and being able to choose what and how to record the data; you are not limited by the luck of what historical traces happen to be left behind. You can observe what happens; you can take measurements; you can even preserve aspects of the events through various recording devices. Moreover, if people participate in the events, you can ask them questions. The amount of data seems infinite.

So as not to be buried under masses of data, you must consider how to limit data to manageable proportions, how to select and record the data most appropriate to your purposes, and how to interpret and combine the many different kinds of data. If you collect too much data of too many different kinds, you won't be able to harness them to clear, significant generalizations. Events in the past have been simplified for us just because we have limited kinds of evidence about them, but events happening today present themselves in all their complexity, so we must focus attention to gain some clarity.

With newly emerging events, furthermore, you have the advantage and disadvantage of not knowing how matters will turn out. With past events you know, in a sense, the meaning of the events, because you know the results: who won the war or which creatures survived the evolutionary struggle; thus you can try to figure out why one side prevailed or what anatomical features helped survival. You can put information together in a neat package, certain that events will turn out in the anticipated way.

But current events present uncertainties about where they come from and where they are going. Subsequent developments may prove anything you say to be wrong, foolish, or trivial

Historical material can easily mislead you to assume that what happened was the necessary and only possible consequence of prior events and that, moreover, it was all for the best; current material will keep you properly cautious. The uncertainty of the future, as well, allows you to test ideas by seeing if your predictions come true. If what you learn about the present leads you to foretell correctly what will happen in the future, you can have confidence in your knowledge. But like meteorologists and economists, you must prepare yourself for the disappointment of many failed predictions.

Reading Studies of Events As They Happen

General Problems, Specific Data

Research using current evidence specifically gathered for the study usually is designed around a problem or question the researcher seeks to resolve. In a written report the research problem or question is typically introduced in the opening section. The problem may be suggested by everyday experience, by common sense, by current uncertainties about a subject, or by disagreements in the discipline that have developed in the literature of the field. It is important for the reader to identify what the research problem is and where it comes from.

The problem of Joe Foote's paper "Women Correspondents' Visibility on the Network Evening News" comes directly from the social issues surrounding women's changing role in the workplace and the influence of television in shaping public attitudes. While changes in public policy and in the media in recent decades had resulted in a visible presence of women reporters, the claims of women reporters and other evidence suggested that women were not yet treated equally on the news staff. The problem this paper undertakes to investigate is patterns of gender discrimination in the visibility of women reporters on television. The student essay "Freaking Out" by Stacy Riskin (pages 257-259) takes its problem from the teacher's assignment; that assignment is to help students identify how words establish categories that label and stigmatize groups of people. So the underlying -problem of the student paper is to understand how prejudice works.

Once the problem is identified, the writer usually proposes examination of a particular group of people, an event, or a situation to resolve the problem. The appropriateness and usefulness of the particular research site will usually be explained. Particular data will be singled out as relevant, and data-gathering methods will be explained. Communications specialist Joe Foote, in order to investigate the four questions he specifies at the end of his introduction, systematically records and tabulates how often male and female reporters presented stories on network evening news over a seven-year period. This comprehensive count is then displayed in various ways to allow interpretation of the data in relation to the research questions. The paper by Stacy Riskin uses a more informal interview method to find out how her peers use the term *freak*. When reading about the choice of research site and data-gathering methods, ask yourself why the researcher considers these appropriate—and why alternative sites and methods were not chosen. By understanding the reasoning of the researcher's choices, you gain a sense of the inner logic of the study. Then you can begin to evaluate how much light the research will shed on the underlying problem.

The substance of the research data, or results, are then presented. Findings may be presented gradually as part of an unfolding narrative of events or logical argument, or they may be presented all together without narrative, argument, or interpretation. In the latter case, discussion and conclusions drawn from the data will likely follow. Toward the end of both forms

of articles a more general discussion of the research results usually helps resolve the problem the research introduced.

Writing notes of a few sentences in response to each of the four questions that follow may help you gain an overview of a research paper, as a basis for understanding and evaluating each of the parts written up in a research study.

Questions to Ask in Reading Observational Studies

1. What is the underlying problem addressed in the study? Where does that problem come from?
2. How does the researcher propose to approach the problem? What research site and data-gathering methods are used?
3. When the problem is applied to the research site, what specific research questions emerge?
4. What are the reported results, and what do they indicate about the underlying problem identified by the researcher?

AN EXAMPLE: WOMEN REPORTERS ON NETWORK NEWS

The following statistical study by Joe S. Foote examines how often female reporters appear on the evening news. Despite its reliance on strict statistical method, the study ties the data to our own experience of watching the news. Foote achieves this by mentioning specific prominent reporters and by recounting some of the larger patterns of change that all television viewers have witnessed. Moreover, the analysis of the data is set against the personal experiences of women reporters, to establish whether personal impressions are supported by rigorous examination of the facts. The study indeed confirms that from 1983 through 1989, there was little improvement in opportunities for female reporters.

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READING STUDY QUESTIONS

1. What is the underlying problem Joe Foote addresses? How is that problem tied to larger social issues? How is the problem turned into a specific set of questions for this study?
2. How does the author find a way to gain answers to his questions? Which data sources does he select and how does he gain access to them? What methods does he use to collect and display the data? In what ways are the data and methods appropriate or not appropriate for the questions of the study?
3. What methods of display and analysis allow the author to address his research questions? Would other kinds of display and analysis be more useful, or less?
4. What specific results and conclusions come from the statistical study? How do these results relate to the historical account and personal experiences Foote presents? What overall

conclusions do both statistical and narrative data lead to, concerning the underlying problems of the paper?

Writing Studies of Events As They Happen

Varying Methods, Standard Procedures

The methods currently used for finding out about ongoing events vary, of course, from discipline to discipline, depending on what information they find useful. They range from satellite probes measuring electromagnetic emissions of distant galaxies to interviews with gang members hanging out on a street corner. These methods can be very highly developed, requiring much training for their design and proper use—not only for technological hardware, but for such apparently simple procedures as questionnaires. Many advanced books discuss the problems and appropriate methods of survey research employing questionnaires. Moreover, the same basic method when applied to different disciplines or different problems may require quite different handling. Interviews with Nobel Prize-winning scientists about their career paths require substantially different techniques than interviews with schoolchildren about the fears aroused by witnessing a violent event. Although you will become familiar with the particular methodological concerns, problems, and techniques of your field of study, the following general guidelines for developing and presenting data should help you in a wide variety of situations.

Guidelines for Writing an Essay in the Observational Sciences

1. Know the underlying problem you are trying to solve.
2. Turn the general problem into specific questions to be answered.
3. Choose a research site or source of data that will likely provide significant answers to your specific questions.
4. Know exactly what claim you are testing.
5. Make the claim clear and simple enough to be tested.
6. Know the kind of data that will provide an adequate test.
7. Choose the method that will produce the kind of data you want. Know the biases, limitations, and character of the results of your method.
8. Carry out the method carefully so as to produce the best results possible.
9. Record and present your data in as objective a way as possible, as free from your biases, personal viewpoint, feelings, or interpretations as possible.
10. Present and discuss your data so as to provide as specific an answer as possible to the original questions.
11. Organize your presentation of the evidence according to the standard research report format unless you have strong reasons to organize differently.

1. *Know the underlying problem you are trying to solve.* The underlying problem is a basic issue or question you need to resolve in order to understand your subject. Anyone studying the sun, for example, needs to know if stars change through time and where in this cycle the sun

is currently located. People interested in labor relations need to know why some industries are more highly unionized than others.

2. *Turn the general problem into specific questions to be answered.* The underlying problem will frequently be too general to research directly narrowing the questions to more concrete issues makes meaningful answers more likely. The problem of why some industries unionize more than others, although important, suggests too many variable factors and too many possible solutions to handle in any single research project. However, narrowing the question to the influence of what are likely to be key factors' in unionization can lead to a reasonable research project. Data and conclusions already in the literature may even be part of your answer. Typical specifying questions might be as follows: Do social and economic differences among workers in different industries make workers more likely to affiliate with a union, or less? Do the work environment, work task, or social relations among workers differ so as to influence union membership? Do differences in management organization, planning, or policies affect union membership?
3. *Choose a research site or source of data that will likely provide significant answers to your specific questions.* Since the resources of any research project are limited, you must select only one or a few groups, incidents, or organizations to study. Insofar as you have control over the material you will study; you should try to choose a research site that highlights your particular questions. If, for example, you want to find out the effect of work environment on union membership, you should try to examine companies that are similar in all ways except their work environment-perhaps in a partly modernized industry, all factors are similar except that some workers work in old and unpleasant facilities, whereas others work in modern, pleasant facilities.
4. *Know exactly what claim you are testing.* Focus your attention on the particular data relevant to your interests. If you don't know exactly what you are trying to find-out, you may wind up with a lot of data but no clear knowledge 'about anything. Of all the information you could know, for example, about union members, their backgrounds, their companies, or their jobs, only a manageable amount would be relevant to the specific claim "The more power the worker has to schedule and organize his 'or her own work, the less likely he or she is to join a union." To test this particular claim, you need to gather data only about who makes scheduling and work decisions and correlate that to union membership.
5. *Make the claim clear and simple enough to be tested.* Specific claims offer a manageable model of reality to work with. For the time being, they eliminate the overwhelming number of potential variables to allow a clear answer on one specific item rather than a fuzzy, indecisive conclusion about a more complex proposition. If a statement is too complex or offers no clear test, then you cannot gain a solid conclusion about its truth.

For example, the statement "Unhappy workers join unions" is both fuzzy and complex. What indicates happiness or unhappiness? Is it the percentage of time that workers frown? Is it the amount of complaining they do? Is it the number of nervous disorders they suffer? Is it simply whether they say they are happy? It could be all or none of these. Workers of a particular social group may be more vocal in complaining: does this mean they are more unhappy than workers from a quietly suffering group? Even if all the fuzziness could be eliminated from the statement, happiness or unhappiness would be made up of many complex variables, such as sense of adequacy of pay, harmonious relations with fellow

workers, perception of power or powerlessness with respect to many different aspects of the job and organization, and so on. In this case, you would not have reduced the number of relevant variables to manageable proportions. A more focused claim would be, "When the ABC union first recruited membership among the workers at the XYZ factory, those workers who became union members reported a greater distrust about management's concern for the workers and a greater sense of powerlessness as individuals to influence their work conditions."

In order to obtain manageably simple claims, researchers in many disciplines in the natural and social sciences work with self-consciously simplified models of the events they are studying. They know that the world is far more complex than their models and that they are eliminating some potentially significant variables, but these simplifications do produce useful results. Indeed, the whole discipline of economics rests on the large simplification that all people always act in the economically most rational way to maximize gains and minimize losses. Economists do not consider what happens when you do business with your grandparents.

Although social scientists appreciate the need for precision and clarity, some anthropologists, sociologists, and psychologists have resisted the simplifying assumptions of their disciplines. Particularly in recent years a number of researchers have been reminding us that culture, society, and the human mind are rich, complex phenomena and that simple descriptions seriously distort understanding. Their writings have tried to present a richer or thicker description of the events these scientists analyze. They present multiple factors and multiple dimensions in their discussions, resulting in a more flexible, open sort of presentation, in some ways similar to the interpretive essay in literature or the other arts.

6. *Know the kind of data that will provide an adequate test.* Different kinds of statements require different kinds of data. Statements concerning worker feelings and perceptions about unions require evidence of what the workers themselves say, which could be provided by interviews or questionnaires. Statements concerning relationships between economic status and union membership require statistics concerning the economic status of members and nonmembers. Furthermore, different economic statistics present different interpretations of economic status. Earned income, total individual income, family income, family assets, home ownership, debt, and ownership of luxury items, such as a boat or VCR—each of these sets of statistics will give a different picture of economic condition. You have to decide exactly what you mean by economic status and decide which statistics will most accurately reflect your definition.
7. *Choose a method that will produce the kind of data you want. Know the biases, limitations, and character of the results of your method.* Many techniques may be available to you, and each will produce different kinds of results.' The social sciences raise this problem most critically in terms of how close researchers are intellectually and personally to the people they study. The price for getting inside the minds or experience of people often seems to be a loss of objectivity; correspondingly, the price of objectivity often seems to be a limitation on the depth of the evidence. Here are some of the options with their advantages and disadvantages.
 - *In-depth interviews* give the subject's conscious perception of events or a situation in great detail. You will learn the conscious thoughts, actions, and motivations of the subject. However, unless you compare the interview with other kinds of evidence, you may not be aware of the self-deceptions, unconscious thoughts, or limitations of the

individual's perspective. One person's account, no matter how detailed and honest, is not necessarily a true and complete account of what happened. Further, the person being interviewed may not fully open up to the outside interviewer. And the interviewer, the kind of questions, and the manner of asking may influence the answers the subject gives.

- *Participant observation* tries to eliminate the “outsider” problem by having the researcher actually take part in events so that the other people being studied treat the observer as an insider and the observer also has his or her own experience to report. Although participant observation gets the researcher further into the actual experience of events, the researcher may lose objectivity and may not be able to see the events from the outside.
 - *Case studies* view events from the outside by obtaining all possible information about a single event, but because the study focuses on a single complex event, general conclusions may not be warranted. The results from interviews and participant observation often suffer the same problem of lack of generalizability, because the researcher obtains so much information particular to the situation being studied. That is, the individuality of the event appears more forcefully than its representativeness and typicality.
 - *Questionnaire surveys*, by asking a large number of people exactly the same questions answered in a standard form, allow more generalized results that are less influenced by the personal dynamics of the individual interview and the subjective impressions of the interviewer. However, such surveys tend to be rather removed from the events studied, so you have to rely on the word of the interviewee. Saying that you will vote for a particular candidate or that a particular issue is important to you is not the same as pulling a lever in a voting booth.
 - *Behavioral observation*, that is, watching what people do and say but not asking them questions and ideally not even letting them become aware they are being observed, also is an attempt to gain objective data of the events, influenced neither by the perceptions of the subjects nor by the presence and thinking of the researcher. However, what is gained in objectivity may be lost from the richness of the data.
 - *Publicly available statistics*, such as census data or economic figures, are perhaps the least influenced by subjective considerations, the broadest in base, and most generalizable. But public statistics report only limited specific information of interest to the organization collecting the data, not necessarily directly relevant to your research questions. Also, the figures usually refer only to external behavior and do not report feelings or perceptions.
8. *Carry out the method carefully so as to produce the best results possible.* Depending on your field of research and the methods you use, this may mean choosing an appropriate and adequately sized sample to work with, providing appropriate control groups, eliminating or taking into account various factors that might contaminate the results, and designing and tuning the instruments correctly. Proper instrument design and use refers not only to actual hardware such as Geiger counters, but also to intellectual tools such as questionnaires. Extensive research has gone into how to design questionnaires and carry out surveys so as to get the most honest, uninfluenced, and useful results possible.
9. *Record and present your data in as objective a way as possible, as free from your biases, personal viewpoint, feelings, or interpretations as possible.* Language is a powerful tool, allowing you to express moods, attitudes, feelings, judgments, concepts, interpretations, and conclusions at the same time as you describe an event. All these subtleties of expression,

however, reflect your personal viewpoint. You need to record and present your evidence in such a way that everyone can agree on the data. The following sentence is loaded with personal judgments made by the observer: "The anxious man thought for a long time before making a defensive gesture." Does the writer know what he was thinking? Is the movement the man made necessarily a gesture with implied meaning? How can the writer know that the man was anxious and defensive, or even that anxiety and defensiveness are psychologically valid concepts to invoke? How long is "a long time"?

Social scientists and natural scientists, in order to avoid such problems, attempt to keep their language *value free and judgment free*. That is, they try to avoid words that imply any opinion, thought, or attitude about the factual material being reported. Frequently they attempt to find a *mathematical* or *statistical* way to represent their results, because numbers are free of connotations. Most disciplines, as well, have developed *specialized vocabularies* to express information crucial to the field in terms that most members of the field feel are objective and precise. In describing what they observe, social scientists sometimes attempt to use what they call *behavioral* language—that is, words that simply describe subjects' external behavior, carefully avoiding anything that implies reasoning, thoughts, feelings, motivation, or intention. Thus they might phrase the earlier example, "The man did not speak or move his limbs for four seconds. His right arm then moved from hanging straight down to a bent position, the upper arm horizontally straight forward and the lower arm at ninety degrees, horizontally positioned in front of the face, with the hand open and facing outwards." Similarly, other scientists might use what they call *operational* language—that is, language that defines all concepts in terms of a series of operations or actions so that any person will be able to identify the same operations or actions and come up with the same concept. Thus a cake would be defined by the recipe to make it. If readers follow the recipe precisely, their actions result in a cake.

In some kinds of studies and with certain types of data, such as when you are involved with participant observations that really try to get at the inside of events, you will not be able to maintain entirely value- and judgment-free language. As mentioned earlier, a number of anthropologists, sociologists, and psychologists, seeing the richness of human behavior, write their work in a more interpretive fashion, to get at the complex personal experience behind the behavior. Some would even argue that the use of behavioral and operational language implies a mechanistic view of humans as both subjects and researchers and that a more human-centered view requires a different kind of language. In such situations, the language is understandably somewhat less tightly objective. Because objectivity of language is complex, difficult, and uncertain does not mean you should give up the struggle. Objectivity can remain an ideal goal, even when unreachable. You should always attempt to eliminate the obvious biases of your language. Even when presenting a highly personal perspective, you might begin by stating what your perspective is so that readers will be able to take that into account when they read your presentation of the evidence.

- 10.** *Present and discuss your data so as to provide as specific an answer as possible to the original questions.* You must state the original issue clearly and then specifically relate the data to the problem. You must never let the data overwhelm the point you are trying to make. Always keep your eye on the central issue and make sure the reader knows the connection between each piece of data and the overall point. In some fields, statistical techniques for combining and focusing the data facilitate clear-cut answers to the issue at hand. Yet no matter how technical the statistical methods you use, you should always return to a clear verbal statement about the relationship between the statistics and the claim you are testing.

11. *Organize your presentation of the evidence according to the standard research report format unless you have strong reasons to organize differently.* Sometimes your ideas and evidence may suggest an unusual organization for the presentation of your results, but in general you should organize your paper in the following pattern, whether or not you formally divide your essay into separate sections with subheadings:

- Statement or thesis to be tested
- Source of the statement or review of the relevant literature
- Choice of evidence or data, including the specific situation or event being investigated (sometimes called the *research site*) and justification for the choice
- The method of data collection, including details of the interview technique, questionnaire, or observation method
- Presentation of the data, possibly including charts or other statistical displays, but always described or summarized in ordinary prose
- Discussion of the findings and conclusions

A STUDENT EXAMPLE: HOW WORDS CATEGORIZE PEOPLE

For an introductory sociology course Stacy Riskin, along with her classmates, was assigned to investigate how people used words to categorize or label groups of people. Each student was to choose a word that labels people as belonging to a category. After examining dictionary definitions of the word, they were then to survey two to twenty of their classmates to find out how they used the word. The results were to be written up in a report of about five pages. Since when she was younger Stacy had sometimes been taunted as "freaky" by some of her junior high classmates, and in high school had made friends with people who identified themselves as freaks, she thought *freak* would be a good word to look at. She found out that the identity could be positive and negative, depending on what you thought of being conventional.

Sample Essay

"Freaking Out"; Dancing to a Different Drummer
by Stacy Riskin

According to the Oxford English Dictionary, the term freak can be traced to the 16th century and its origin is not certain. One possibility is that it comes from the Old English frician, which means "to dance" (OED 1:1074). In spite of this seemingly positive association, the connotations of freak have historically been negative. In fact, it is most commonly used as a label for people who do not "fit in" to "normal" society. However, in late 20th century popular usage, especially among people who value nonconformity, creativity, and individuality, the term seems to be regaining its positive connotations. The results of my survey of classmates indicate that both positive and negative connotations are still carried by the term. While people who do not care for nonconformity use the term freak to stigmatize non-conformists, other people are proud to adopt the label of nonconformity and call themselves freaks. By implication, they then consider those who follow the norm as stigmatized for their lack of creative energy.

The first definition of freak cited in the Oxford English Dictionary, "A sudden causeless change or turn of the mind; a capricious humor, notion, whim, or vagary," certainly has negative connotations. The terms sudden, causeless, capricious and whim all indicate a lack of seriousness or thoughtfulness which may have disastrous consequences. As the

examples given to illustrate usage indicate, someone or something "freakish" is probably behaving irresponsibly: "So, I feare the fickle freakes ... Of Fortune" and "One of the grimpest freaks that ever entered into a pious mind." Clearly, freaks--in any form--should be avoided.

A second definition from the Oxford English Dictionary is even more specific, and more negative, and is more closely tied to current usage: "A monstrosity, an abnormally developed individual of any species." In the nineteenth century, especially in the United States, the term was used to refer to "a living curiosity exhibited in a show." The "living curiosities" in "freak shows" were human beings who looked or acted differently than the "normal" people who paid money to see them: for example, "geeks" (people who bit the heads off of live chickens), "midgets" and "giants," "primitives," "bearded ladies," "tattooed men," and hermaphrodites. Freak in this sense refers to an "outsider" or "outcast" who has no place in society except to amuse and entertain "normal" people.

To see whether the term freak was still used to identify outsiders who did not fit in normal society, I made a survey of seventeen undergraduate students at this college during the second week of February this year. The seventeen students, all of whom are personal acquaintances of mine, were interviewed at various places on campus at various times of the day: eight during lunch and dinner at the student cafeteria, five during the afternoon in a study room at the library, and four at the dorm in the evening. All were given the same series of questions in writing and were asked to respond in writing. The questions are listed in the appendix.

I then sorted through the written responses to determine which definitions were used by the various correspondents, whether they associated positive or negative connotations with the words, and whether they identified themselves in any way with the term. In my analysis of the responses, I supplemented what was said by the respondents with my own personal knowledge of each. Since, however, there was no discrepancy between my personal knowledge and the responses of each, I will rely purely on the written responses in my report.

The survey results show that the word still has negative connotations, especially among those who consider themselves to be part of the "norm." The term freak is used to refer to unpredictable or capricious things or people who should be avoided if at all possible. One respondent, using the term in a sentence, wrote, "Hurricane Andrew was a freak storm that resulted in enormous amounts of damage to property and even took human lives." A second responded, "My best friend's brother is a speed freak--you never know when he's going to flip out and do something crazy." Several of the synonyms for freak given by respondents suggest this sense of threat or danger: for example, "a psycho," "a crazy person," "someone who is out of control." Not surprisingly, when asked if they had ever been called a "freak," most of these respondents answered, "no" or "never."

Survey results also suggest that the second definition, along with its negative connotations, is still the most common way the term is used. Freak is almost always used to refer to people who are perceived to be abnormal and the range of negative synonyms yielded by my survey demonstrates that being abnormal is not a positive trait; among other things, a freak is "somebody who acts bizarre," "an oddball," "a punk," "a misfit," "a weirdo." These same respondents almost unanimously gave one term as the antonym for freak: normal. Although the term no longer refers to someone who is exhibited in a show, the sense of standing out from the crowd is still central to being a freak. When asked to define the term in one sentence, more than half of the respondents expressed the idea that a freak is someone who is different in a negative way: for example, "someone who refuses to play by the rules," "a person who deviates from the norm, in a negative way," "someone who does crazy or stupid things," "someone out of the ordinary who is not accepted by society or amuses society." The majority of these same respondents, when asked if they would consider the label an insult or a compliment, responded "an insult."

However, those respondents who admitted to having been labeled or who label themselves freaks gave responses that suggest a shift to a more positive connotation. In this usage, the term no longer has a negative connotation of threat or, as one respondent put it, "flakiness." One respondent wrote, with obvious pride, "When I moved away to college, I became a club freak. Every Saturday night my friends and I go out to the underground clubs and dance until four in the morning. It's a good way to relax and have fun after a long week of studying and going to class." This example shows how the term has shifted from a

dangerous "whim" or "capricious humor" to an "obsession" which, in this person's opinion, is neither dangerous nor irresponsible. Strangely enough, this respondent also referred to "freaking out" on the dance floor. What are we to make of this lingering connection to the sixteenth century origins of the term?

The second definition, of being "different from the norm," also has a more positive connotation when used by those who describe themselves as freaks. One female respondent, who admits that she has been called a freak numerous times, and each time, she took it as a compliment, defines a freak as "someone who is in any way striking, worth more than a glance." This same respondent gives creative and interesting as synonyms and dull and boring as antonyms. Another self-professed freak wrote that even if the term was meant as an insult, he would take it as a compliment: "If someone views me as a freak, so what? I don't aspire to just being 'normal.' I'm not a sheep." Interestingly, these respondents, like those who view the term negatively, *admit* that being a freak is being different. However, they insist that being different is not a bad thing. In fact, being a freak means being unique, being an individual.

The meaning of the term freak, like other terms with long histories and multiple, even conflicting definitions—for example, cool, bad, straight, and radical—is constantly evolving. In the nineteenth century, freak was a label attached to human beings whose appearance or behavior so deviated from the norm that they made their living in traveling carnivals. By the 1960s it had evolved into a term used to refer to members of the counter-culture. By the mid-1970s, it was turned into a verb and used to refer to frenzied dancing. By the mid-1980s, this verb was used to describe any kind of anxiety-produced reaction. Today, it still retains some of its nineteenth century meaning, but the later meanings have mixed in, and along with growing awareness and appreciation of diversity, the negative connotations seem to be slipping away.

Survey Questions

1. Define the term freak in no more than one sentence.
2. Give at least one term that means the same as freak.
3. Give at least one term that means the opposite of freak.
4. Use the term freak (or some variation of it) in a sentence.
5. Have you ever used this term? If so, briefly describe when and why.
6. Have you ever been called a freak? If so, briefly describe when and why.
7. Have you ever called yourself a freak? If so, briefly describe when and why.
8. If someone were to call you a freak, would you think it was an insult, or a compliment? Explain.

A SECOND STUDENT SAMPLE: AN OBSERVATION REPORT IN THE BIOLOGICAL SCIENCES

The following observational report by student Sherry Singh was written for a field laboratory course in environmental science. The assignment from the instructor specified data-gathering and analysis techniques as well as the format of the report:

Write a lab report for the Coal Oil Point experiment, using the standard format for a scientific paper. The introduction should include a statement of purpose and a description of habitat. The materials and methods section should describe both the descriptive and quantitative sample techniques. In the results sections, you should include the data from the quadrant in unanalyzed and analyzed form, using tables and graphs. The discussion should consist of a comparison of the abundance and distribution of the three animal species within and between transects and offer possible reasons for variations. In the conclusion section, you should restate concisely the major results and findings and the significance of the study.

Sample Observational Report

LAB REPORT

Sherry Singh

Environmental Science 1001

The Rocky Intertidal Ecosystem: Animal Species Distribution at Coal Oil Point

INTRODUCTION

The purpose of this report is to determine the abundance and distribution of the dominant animal species at the rocky intertidal zone at Coal Oil Point, located on the Pacific Coast about ten miles north of Santa Barbara, California. Coal Oil Point is a Monterey formation of shale and silt stone protruding into the Pacific Ocean to the south. The point is bordered on the east and west by ocean and on the north border by a cliff. The point can be divided into two main areas: a boulder field and a reef. Tidal and wave action, temperature, desiccation (the "drying" of organisms), water salinity, currents, shelter areas, competition, and predation greatly influence the distribution and abundance of the organisms found at Coal on Point.

This laboratory experiment will compare the abundance of three animal species between and within the boulder field and reef and will address the following questions:

What are the dominant species at each location?

Where is each species' habitat within each location?

What biological and physical factors influence abundance at each location?

MATERIALS AND METHODS

The data collection took place on May 14, 1993 at approximately 6:30 a.m. at low tide at the rocky intertidal zone at Coal Oil Point. The sampling was done at two locations--a reef and a boulder field--and two types of sampling methods were used.

Descriptive Sampling: In this type of sampling, the two locations to be studied were divided into three tidal zones: low, middle, and high. Within these zones, the following characteristics were noted concerning specific organisms:

What microhabitat the organism lives in.

Whether the organism is exposed to air or submerged for long periods of time.

Whether the organism is usually found in isolation or in communities.

Quantitative Sampling: In this type of sampling, the distribution and abundance of the dominant species were determined by the construction of three 30-meter transect lines at the two study areas, which extended from the low to high tidal zones. Eight quadrants measuring 1/4 square meter each spaced at 4-meter intervals starting at the low tidal zone were placed along each transect line.

The following three animal species were sampled and recorded within each quadrant: *Pollicipes polymerus* (gooseneck barnacles), *Pagurus hirsutiusculus* (hermit crabs), and *Notoacmaea* (limpets).

DESCRIPTION OF THE ORGANISMS STUDIED

Hermit crabs (crustaceans) live on rocky shores in tidal pools, on gravel bottoms, and under rocks. Their habitat ranges from the middle to low tidal zones to more than 50 feet. Natural predators include sea birds. Barnacles, which are also in the crustacean class, are usually found in the exposed upper areas of rocks and boulders. Gooseneck barnacles are found on wave-swept boulders between the high and low tidal zones. Sometimes they are mixed with mussels on steep, vertical rock surfaces. Limpets (of the class Gastropoda) live on rocks throughout the rocky intertidal zone. They are most active at night, when they feed on algae. Natural predators include the sea star.

RESULTS

Data collected from the lab experiment are presented in unanalyzed and analyzed forms. Unanalyzed data are presented in tabular form. Analyzed data are presented in three pairs of histograms which present graphical representations of the quantity of organisms at each quadrant within a transect. These histograms compare the abundance and distribution of the three species within and between the two locations studied.

The horizontal axis of each histogram represents the quadrant number (with one being the low and eight being the high tidal zone). The vertical-axis represents the average (or percentage) number of organisms found in each quadrant, which is calculated by averaging the number of organisms at the same quadrant of each transect.

DISCUSSION

In this section the abundance and distribution of the three animal species and possible reasons for differences in abundance and distribution will be discussed.

As the histograms suggest, the animals found at both the rocky boulder and reef areas increase in abundance as they get closer to their optimal habitat. The differences in abundance and distribution between the two locations can be attributed to biological and physical factors.

Gooseneck Barnacles: This species is moderately abundant in the boulder field in middle tidal zones. It is found in higher numbers and at higher tidal zones in the reef. There are several possible explanations for these variations:

1. This species of barnacles may be more vulnerable to competition in the boulder field than in the reef, which would account for greater abundance in the reef. For example, there may be more mussels in the boulder area than in the reef which compete with the barnacles.
2. The barnacles may be found at a lower tidal zone in the boulder field because they are able to grow on rocks that rise from the water while in the reef they can maintain the same level of immersion in water in a higher tidal zone to prevent desiccation.

Hermit Crabs: This species is found in great abundance in the boulder field in lower tidal zones. Fewer organisms were found in the reef and most of them were in higher tidal zones. There are several possible explanations for these variations:

1. The boulder field provides greater shelter from wave action than the reef, which allows more crabs to live in lower tidal zones where more food is available.
2. The reef offers little protection from wave action except in high tidal zones (where the force of waves is dissipated), but this zone contains less food (because there is less water) and therefore fewer crabs.
3. Hermit crabs, a species vulnerable to predation by birds, are evenly distributed in the low to middle tidal zones which provide protection from predation, but decrease in abundance in the higher tidal zones due to the absence of protection from predation.

Limpets: This species is found in great abundance in the lower tidal zones of the boulder field and in gradually decreasing quantities in higher tidal zones. It is found in much lower quantities in medium and high tidal zones in the reef. There are several possible explanations for these variations:

1. The boulder field provides more shelter from wave action than the reef, which allows more limpets to live in lower tidal zones where more food is available.
2. Limpets need a hard surface to attach to, and the surface area in the boulder field provides a larger habitat than the reef.

CONCLUSION

The compiled and analyzed data for the three plant species at Coal Oil Point suggest the following conclusions:

1. In the boulder field, limpets were found in the lower tidal zones and gooseneck barnacles and hermit crabs were found in the middle tidal zones. No species seemed to be particularly suited to the higher tidal zones in the boulder field.
2. In the reef, limpets, gooseneck barnacles, and hermit crabs were found in the higher tidal zones.

These conclusions suggest that species are best suited to habitats which are determined by biological factors such as predation, competition, temperature, amount of water, and amount of protection from tidal action. Species are abundant in habitats to which they are best suited. Depending on its physical characteristics, its vulnerability to predation and changing environmental stress, habitats are formed which are most conducive to the survival of the species. The intricate workings of the intertidal ecosystem itself accounts for the diversity and ultimate survival of the animal species found at Coal Oil Point.

WRITING ASSIGNMENTS

1. Summarize Joe Foote's "Women Correspondents' Visibility on the Network Evening News" (pages 251). Then write an informal journal entry answering the four reading questions on page 251.
2. For an introductory course in sociology, write an informal response essay to Foote's article, comparing women's roles in other fields of employment to those of women in the media.
3. Observe six different half-hour network evening news shows--three local and three national--and note the presence or absence of female correspondents in order to see if the visibility of women has improved since the publication of Foote's article. Pay special attention to data relating to Foote's four research questions (pages 251). Then write a 500-word update to Foote's article.
4. After reading Stacy Riskin's essay, choose a word that labels people as belonging to a category, or two words, one of which labels people positively and the other, negatively. After examining dictionary definitions of the word(s), survey ten to twenty of your classmates to find out how they use the word(s). Use the survey questions that Stacy created (259) as models. Then write a five-page report detailing the results of your research and your survey.
5. Write a letter to the editor of your college newspaper arguing for the 'political correctness' of one label over another. In your editorial, draw on details from your survey findings to provide support for your position.
6. Conduct an anonymous survey of your classmates immediately after the due date for a paper assigned in another course you are taking, and again immediately after the papers have been returned. For the first half of your survey, design the questions to determine how much time each student spent reading, thinking, prewriting, drafting, and revising the paper; the total time spent; when he or she started writing it, and so on. For the second half of the survey, design the questions to determine results--such as the grade received and the kinds of comments the instructor made--as well as each student's response to these results. Then write a five-page report detailing the relationship between the students' writing process (including time management and time spent) and results. Compare your findings with the findings of other students in your class and discuss any differences.
7. Find one or more research articles in academic journals concerning a contemporary social

problem that interests you. Write an essay for a column in your school newspaper entitled "What the Experts Say" describing what you have learned from the articles or how they deepened your insight into or your understanding of the subject.

8. Look at the latest issue of a psychology, sociology, or economics journal. Find an article that presents an item of general interest; then write a short article (100 words) for your local newspaper reporting these findings.
9. Erving Goffman, in his book *Gender Advertisements*, observes the way gender images and identities are reinforced in advertisement illustrations. Among the visual features he observes in these illustrations are relative size, the feminine touch, function ranking, family grouping, the ritualization of subordination, and psychological withdrawal. After reading the following excerpts, which describe some of the thematic papers he finds, design and carry out a series of observations of current advertisements on television and in magazines that test the validity of Goffman's findings. Then write up your observations and conclusions in a short report to your classmates.

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