

Who We Are

# So, What Do You Think?

Using polls and surveys for fun, profit and deception



How often do people ask for your opinion?

<input type="radio"/> True <input type="radio"/> False	Never (Nobody seems to care about my opinion.)
<input type="radio"/> True <input type="radio"/> False	Rarely (Maybe my best friend sometimes but I'm not really sure.)
<input type="radio"/> True <input type="radio"/> False	Sometimes (Every so often someone asks for my opinion.)
<input type="radio"/> True <input type="radio"/> False	Most of the time (Even my parents seem to care what I think.)
<input type="radio"/> True <input type="radio"/> False	Nearly all the time (Everyone seems to seek out my opinion much of the time.)

# What do you mean, nobody cares about your opinion? Didn't we just ask?

Our modern world is filled with opportunities to give your opinion. Much of the time it's in magazines, on Web sites, or via television call-in polls. You might be right in thinking nobody much cares about the results, but it can be fun anyway. Most people like to know what other people think and how this compares to their own opinions. Here's another quick poll to take:

<b>At what age do you think children should get their parent's permission before getting a tattoo?</b>	
<input type="radio"/>	Under 6 years old.
<input type="radio"/>	Under 12 years old.
<input type="radio"/>	Under 16 years old.
<input type="radio"/>	Under 21 years old.
<input type="radio"/>	Never (Kids should have complete control over their bodies when it comes to tattoos.)

This simple poll doesn't give us much understanding of why you think what you do. But, if you compare your opinion with those of others, you will know whether or not your opinion is similar to theirs. Later on, we will look at another type of survey that will give us more information.

## **Other Uses for Opinion Polls**

Of course, simple opinion polls are not the only reason people use polls and surveys.

- Companies use market surveys or focus groups to see what potential customers think about a product.
- Movie studios hold previews to survey viewers to see how they react to the movie. A number of movies have changed their endings before release because of audience reactions at previews.
- Employers survey workers to see how they are feeling about their jobs.

- Stores survey customers to see how they feel about the service and products.

## Voting is one of the most important forms of polling



On a regular basic, government seeks to survey all adult citizens to get their opinion about critically important issues. It's called voting. The place where you

vote is called a polling station. (Note: when it comes to gathering public opinions, the words, "poll" and "survey" are often used to mean the same thing.)

Voting is a special kind of survey in which decisions are made. When you ask all your friends about where they want to get together on Saturday night, you are conducting a survey. When there is disagreement and you say, "OK, let's see where the majority wants to go," you are voting.

Can you think of other situations where people conduct polls or surveys? List some examples:

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Have you ever participated in a poll or survey? If so, where and what was it for?

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As we have seen, polls and surveys are typically used to find out what people think, what products they use, and who they might vote for.

Opinion polls or surveys seek to understand attitudes and preferences. They're used for serious things and for fun – to see who is the most popular, best looking, sexiest, or the most annoying.

## Lies, Damn Lies, and Statistics

Statistics are used to analyze the results of polls and surveys. Poll results are often presented in fractions or percentages.

Example 1: Two-thirds of the class reported they enjoyed the field trip, although 100% of the boys said they'd prefer not to go to the chocolate factory again.

Example 2: 90% of those who called in to the radio show said they never wanted to hear the Monkees' "Last Train to Clarksville" again.

Interesting, but how useful is this information? Based on the statistics given, what can we assume from the examples?

1. None of the boys enjoyed the field trip. True \_\_\_  
False \_\_\_ Don't Know \_\_\_
2. Girls like chocolate better than boys do. True \_\_\_  
False \_\_\_ Don't Know \_\_\_
3. Hardly anybody likes the "Last Train to Clarksville."  
True \_\_\_ False \_\_\_ Don't Know \_\_\_

The correct answer for each of these questions is Don't Know. The statistics do not provide enough data to know one way or the other.

It's entirely possible one of the boys enjoyed the field trip even though he would not like to go back. No information was given about boys or girls preferences for chocolate. Even though 90% of the listeners who called in did not like "Last Train to Clarksville," we don't know the opinions of people who did not call in or were not aware of the poll. Further, a couple of Monkey-haters may have called in repeatedly just to vote "no."

The point is that for statistics to be useful, we have to know a good deal about how they were gathered, and who was selected to participate. And we have to be careful about how much we can generalize the data. Regarding "Last Train to Clarksville," all we know from the poll results is that 90% of those who called in didn't like the song. That's it. We don't know what all the listeners think, and we certainly don't know what all the people in the city or country think.



There's the story of the scientist with his head in an oven and his feet in dry ice who says, "On average, I feel fine."

This all sounds pretty obvious, but lot's of people are fooled by the deceptive use of statistics – particularly in advertising.

How often in ads on television do we hear something like: “Our product is 72% more effective!”? 72% more effective than what? Sometimes this kind of claim refers to a previous version of the same product. So we do not have any idea about how it compares with a competing product?

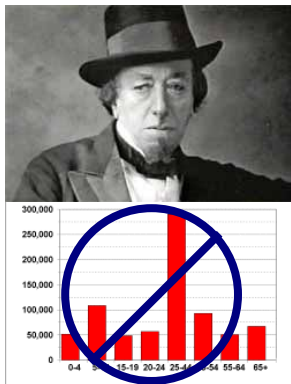
How about, “Four out of five dentists recommend Dentyne.”? Does this mean Dentyne is more effective for cleaning teeth or freshening breath than other chewing gums or mints? Or does it mean that Dentyne has an aggressive marketing campaign that provides dentists with lots of samples to give away? We don't know. The point is that these statistics really don't inform us even though they seem to lend credibility to the product.

What do you think the quote from former British Prime Minister Benjamin Disraeli, “Lies, damn lies, and statistics,” means?

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Statistics of all kinds, including those from polls and surveys, are regularly used to deceive people. Understanding more about the tricks or limits of statistics can help us to defend ourselves against fraudulent claims and use statistics appropriately to better understand things.

## Examples of Online Polls

There are many polls available on the Internet. They allow you to add your vote or opinion to those of others and then immediately see the results. Try the following sites.

**Teen Line On-Line** – a site specifically created for teenagers. Answer the poll and then compare your answer to the answers that other people have given. Look at the previous polls as well to see what other teenagers think. What did you discover?

<http://www.teenlineonline.org/message.htm>

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**Purple Pajamas** – a site designed for teenage girls. Take their poll and see how your answer compares. Are you surprised? (Boys should take this as well – it's a good way to see how girls think.)

<http://www.cybergrrlz.com/>

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**Why do teenagers commit crimes?** What is your opinion?

Write down your opinion and then check out the results of a poll done with 11 to 16 year olds. What was their opinion? Do you agree or disagree? Given the results of the survey, what should schools and communities do?

<http://www.mori.com/polls/2002/kidsclub.shtml>

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**Do teenagers think cops are fair?** The answers may surprise you. Do you agree or disagree with the opinion expressed by the majority? If their opinions differ from those who answered the poll, why do you think there is a difference?

[http://www.mori.com/polls/2003/nfm16\\_trust.shtml](http://www.mori.com/polls/2003/nfm16_trust.shtml)

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**Find Another Poll:** There are numerous other polls on line. Using a search engine like Google to find at least one other poll. Take the poll and check out the results. Write the Web address (URL) for the site, the question you responded to, and the results below.

Web Address: \_\_\_\_\_

Poll Question: \_\_\_\_\_

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Results:

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# Something Doesn't Sound Right

The following are examples of statistics being used in ways that are confusing or deceptive. Let's see if you can identify some of the problems in the logic of these statements.

Write why you think there is a problem with the use of statistics in these statements. Then look at the Comment Sheet to see how your responses match up.

1. 70% of respondents to one survey said they were "pro-choice." In another survey, 70% of respondents said they were "pro-life." How could this be?

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2. A study found that students who smoke had lower grades than students who did not smoke. It is reasonable, then, to conclude that smoking causes lower grades?

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3. There are more weddings in June than in any other month. There are also more suicides in June than in any other month. Therefore, weddings are a likely cause of suicides.

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4. The crime rate in Community A fell by 20% from the previous year. In Community B the crime rate went up by 100% in the same period. Community A must then be a safer place to be.

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5. The city wants to install a new drinking fountain in the park. To determine how high to make the fountain, a researcher measured the height of the first 100 people who went to the park on one day. The average height was 4 ft. 6 inches. So the city decided to make the drinking fountain 3 ft tall, assuming that the average person would bend down a foot and a half to sip a drink.

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After answering these questions, review the answer sheet to see if how your answers match up with ours.

## *Comments About*

### **Something Doesn't Sound Right**

These examples of the use of statistics illustrate common errors. These are only a few of the ways that statistics can be confusing or deceptive.

- 1. 70% of respondents to one survey said they were “pro-choice.” In another survey, 70% of respondents said they were “pro-life.” How could this be?**

Although the statements seem to contradict one another, both can be true. The surveys may have been of different groups of people. It is possible that 70% of young women are pro-choice and also possible that 70% of Catholics, for instance, may be pro-life. When looking at survey results, it's important to keep in mind who is being surveyed.

- 2. A study found that students who smoke had lower grades than students who did not smoke. It is reasonable, then, to conclude that smoking causes lower grades?**

Well, actually, it is not reasonable. Just because two conditions (smoking and lower grades) exist in the group of people surveyed doesn't mean that one condition caused the other. They may each be caused by another factor (like coming from low-income families and having to work after school), or they may be totally unrelated. We need a lot more evidence before we can determine whether one condition causes another.

- 3. There are more weddings in June than in any other month. There are also more suicides in June than in any other month. Therefore, it is clear that weddings are a likely cause of suicides.**

This is another example of two conditions (weddings and suicides) that co-exist, but there is no more evidence that weddings cause suicides than suicides cause weddings.

- 4. The crime rate in Community A fell by 20% from the previous year. In Community B the crime rate went up by 100% in the same period. Community A must then be a safer place to be.**

Although Community A, with its falling crime rate certainly sounds like a safer place than Community B, which has doubled its crime rate in one year. However, we don't know enough to know whether or not this is true. Community A might be a big city with a very high crime rate. Even if it falls by 20%, it might still be high in comparison to other places. Community B might be a small town with a generally low crime rate. There may have been a bank robbery and shooting that doubled its crime rate for the year. But, this doesn't indicate it's likely to be any less safe than it has been.

- 5. The city wants to install a new drinking fountain in the park. To determine how high to make the fountain, a researcher measured the height of the first 100 people who went to the park on one day. The average height was 4 ft. 6 inches. So the city decided to make the drinking fountain 3 ft tall, assuming that the average person would bend down a foot and a half to sip a drink.**

Using averages can be a problem. In this example, the average height was calculated by adding up all of the heights of the people using the park, and then dividing that sum by the number of people measured.

Let's say the park is used mostly by high school kids playing basketball at one end and young kids with their parents at the other. For purposes of discussion, let's assume that each of the basketball players is 6 feet tall and each of the young kids is 3 feet tall. (To keep things simple, let's not consider the little kids' parents.) If their numbers were equally divided (say 50 each) and we add up all their heights, we would have a total of 450 feet. When we divide this number by the number of people (100), we get an average height of 4 ½ feet. A water fountain that is 3 feet high would be great for someone this tall, but none of the people who use the park are that height. What is really needed is two water fountains that are appropriate for each group of users. Using an average height in the research was too simplistic.

# Survey

## Tattoos and You

At what age do you think children should get their parent's permission before getting a tattoo?	<input type="radio"/> Under 6 years old <input type="radio"/> Under 12 years old <input type="radio"/> Under 16 years old <input type="radio"/> Under 21 years old <input type="radio"/> Never
Do you have a tattoo?	<input type="radio"/> Yes <input type="radio"/> No
If you have a tattoo, how old were you when you got your first tattoo?	___ years old
Would you like to have a tattoo?	<input type="radio"/> Yes <input type="radio"/> No
What celebrity has the best tattoos?	Name: _____ <input type="radio"/> Don't have opinion
Do you think tattoos will continue to be popular or are they a passing fad?	<input type="radio"/> Continue to be popular <input type="radio"/> Passing fad
How old are you?	<input type="radio"/> 13-17 years old <input type="radio"/> 18-24 years old <input type="radio"/> 25-30 years old <input type="radio"/> Over 30 years old
Are you male or female?	<input type="radio"/> Male <input type="radio"/> Female

# Tattoos and You

## Calculating the Results

Let's see what we can learn from our survey results. Calculate the results and enter them below. Use the following page to enter your insights.

At what age do you think children should get their parent's permission before getting a tattoo?	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 10%; text-align: center;">Total</th> <th style="width: 10%; text-align: center;">%</th> </tr> </thead> <tbody> <tr> <td>Under 6 years old</td> <td style="text-align: center;">—</td> <td style="text-align: center;">___%</td> </tr> <tr> <td>Under 12 years old</td> <td style="text-align: center;">—</td> <td style="text-align: center;">___%</td> </tr> <tr> <td>Under 16 years old</td> <td style="text-align: center;">—</td> <td style="text-align: center;">___%</td> </tr> <tr> <td>Under 21 years old</td> <td style="text-align: center;">—</td> <td style="text-align: center;">___%</td> </tr> <tr> <td>Never</td> <td style="text-align: center;">—</td> <td style="text-align: center;">___%</td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: center;">—</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>		Total	%	Under 6 years old	—	___%	Under 12 years old	—	___%	Under 16 years old	—	___%	Under 21 years old	—	___%	Never	—	___%	<b>Total</b>	—	100%
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## Who We Are So, What Do You Think?

# Vocabulary

Opinion	A view that someone has about an issue.
Opinion poll	A set of questions asked to discover what a group of people think about something.
Survey	Like a poll, a set of questions aimed at finding out what a group of people think about something. Other meanings: to make a detailed map of an area of land; to gaze at something or look at something carefully.
Statistic	A piece of information based on a collection of data.
Data	Factual information obtained from surveys, experiments or observations, often used to make calculations or solve problems.
Analyze	To study data closely to learn more about something.
Percent (%)	An expression of a fraction based on hundredths. One percent is equal to one hundredth of something. Example: There was a 10% rise in the price of gasoline during the past month.
Majority	Over half of the number of people or things in a group. "The majority rules."
Average	A number that is typical of a group of numbers. You calculate the average of something by adding the numbers together and then dividing by the count of the numbers. Example: Three people are aged 10, 15, and 20. The total of the ages is 45. When this is divided by the count of the people (3), the average age is 15. The average age of four people aged 10, 15, 20, and 30 is 18.75.

## Who We Are So, What Do You Think?

# Vocabulary Match

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Directions: Write the appropriate word next to its definition.

1. **Opinion**
2. **Opinion Poll**
3. **Survey**
4. **Statistic**
5. **Data**
6. **Analyze**
7. **Percent**
8. **Majority**
9. **Average**

	A number that is typical of a group of numbers. You calculate this by adding the numbers together and then dividing by the count of the numbers. people aged 10, 15, 20, and 30 is 18.75.
	Factual information obtained from surveys, experiments or observations, often used to make calculations or solve problems.
	Like a poll, a set of questions aimed at finding out what a group of people think about something. Other meanings: to make a detailed map of an area of land; to gaze at something or look at something carefully.
	A piece of information based on a collection of data.
	An expression of a fraction based on hundredths. One percent is equal to one hundredth of something.
	A view that someone has about an issue.
	To study data closely to learn more about something.
	A set of questions asked to discover what a group of people think about something.
	Over half of the number of people or things in a group.