

Factors That Impact Research Results

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WHAT'S COVERED

This tutorial will describe factors that might impact the results of psychological research. You will examine how your self and social awareness and problem solving skills can also have an impact. Our discussion breaks down as follows:

1. Researcher Bias and Observer Bias

In the last lesson, we talked about controlling variables in a psychological experiment. Sometimes, it's the researcher who needs to be controlled. **Researcher bias** refers to when the scientist doing the research affects the research and the results, either intentionally or unintentionally.

Researcher bias can come from many sources:

- Design bias, when the researcher designs it in a way that doesn't necessarily measure what it's supposed to.
- Selection bias, meaning the researcher focuses on a particular type of group for the experiment that might affect the results of the research.
- Measurement or reporting bias, where the researcher is deliberately looking for specific changes that they expect, and so they emphasize those changes, because they're expecting to see them. This can be overt and purposeful, or it might be accidental.
- Lastly, the presence of the researcher themselves can affect what the subject does. If a scientist is in the room, for instance, it may affect the way a person would normally act.

Researcher bias is why scientific studies are reported, examined, and repeated by other scientists before they become a widely accepted theory.

Bias is related to **self and social awareness**. Usually, people need to consider their biases when working with others. Researcher bias isn't exactly the same thing, but it is something that scientists and psychologists have to consider. They have to examine how their expectations might be impacting their work.

In psychological research, sometimes the observers themselves can cause problems with the data. **Observer bias** occurs when a researcher's expectations about what will or will not happen can affect what they actually report.

➞ **EXAMPLE** For example, if you're reporting about teenagers being oppositional and defiant, then you will be specifically looking for these behaviors. You are more likely to notice them when they

occur than you are to notice behaviors that are not defiant. This observer bias is not necessarily intentional, but because you are trained to look for a specific quality, you might not notice other qualities, or you might overemphasize what you are looking for.

Observers often use different tools to prevent or minimize the bias effect, such as rating scales, which are a list of traits or behaviors that guide observations and tell them what to look out for so they don't miss anything important. In addition, observers can use behavioral assessments, which is when an observer records how many times a different behavior occurs. Finally, they might use an observational record, which is a detailed record of all the things that they observe and the different behaviors that they see.

It is important to report all findings when conducting research because others might be able to recognize potential sources for bias. This is why the process of publication and of replicating scientific research is critical to making sure that observer effect and observer bias aren't affecting the results.



TERMS TO KNOW

Researcher Bias

A conscious or unconscious effect the researcher has on the experiment; through design, selection of subjects, measurement or reporting emphasis, or even the presence of the researcher.

Observer Bias

Occurs when a researcher's expectations impact the data they collect.

2. Observer Effect

One of the strengths of non-experimental research methods, like observations, case studies, or clinical studies, is that they observe people in natural settings. The idea is that the results are more accurate because they reflect the behaviors of people in the real world. However, there are still some potential issues with observers and their effects on research.

IN CONTEXT

In the field of quantum physics, it is impossible to measure one aspect of tiny particles without affecting another aspect. You can't look at the position of a particle without affecting how it's moving, because when you examine it, it stops the movement or redirects it in some way.

Now, we're not measuring small particles within psychology, but the premise is the same. We can't actually observe somebody without changing them in some way. We can't observe them and expect a totally accurate result.

This is what is called the **observer effect**, when changes in behavior are a result of being observed in research. The presence of the researcher themselves might affect whether a person does something or how they do it. You've probably experienced this yourself you become very self-aware and change how you behave. You might do this if you are sharing your screen on a video call and have to type something. Suddenly, you make lots of mistakes and can't seem to spell. This could be the observer effect impacting your **self and social awareness**. Researchers try to use tools and measures that are less obvious or invasive, like hidden cameras, to minimize the observer effect.

➔ **EXAMPLE** If you're conducting a study about selfishness and you are observing a subject, that person is more likely to do something good they don't want to necessarily look bad. They sense you standing there observing, and they are more apt to do something selfless instead of selfish.



TERM TO KNOW

Observer Effect

The subject's behavior changes due to being observed.

3. Placebo Effect

Once a researcher designs an experiment and tests it out with different subjects, they gather data from the experiment and analyze it.

When analyzing the data, it's important to think about what might affect the conclusions drawn. We've already discussed researcher bias as one possibility. Researchers also need to consider what effects the participants' own beliefs and ideas about the experiment could have on the results.

Remember that in studies, some groups are controlled and don't get any experimental variables. Sometimes they are given a **placebo**. A placebo is something that resembles the treatment and makes the subjects *think* that they're receiving the treatment, but it actually has no effect in and of itself.

➔ **EXAMPLE** Many times researchers use what is called a sugar pill, which resembles an actual pill, but which actually consists of ingredients that don't have any effect on the body.

Giving people this placebo lets researchers know if the **placebo effect** is taking place in the experiment. The placebo effect is when the subject's **expectations** that their behavior will be impacted leads to the results—not the treatment itself. In other words, it's a case where belief leads to results, instead of treatment leading to results.

This idea underlies the concept of mind over body, whereby a person's mind can create physical changes in the body.

Using a placebo can help researchers problem solve around the results of their studies. It may help explain results that don't make sense.



TERMS TO KNOW

Placebo

A fake pill (such as a sugar pill) or injection (such as a saline injection).

Placebo Effect

Improvement that is not attributed to the experimental condition, that comes from the subject's mental state toward that experimental condition.

4. Self-Fulfilling Prophecy

Researchers themselves can also influence the results of an experiment. This is what is called a **self-fulfilling prophecy**. A self-fulfilling prophecy is when the expectation of a result causes the result to occur.

➔ **EXAMPLE** For example, if you expect a child to behave aggressively, then you may treat them differently than you normally would, and as a result, the child will behave with aggression.

In terms of an experiment, if you think that there is going to be a certain result or a certain effect on a subject, then you might give them small hints that encourage them to respond in the way that you hope.

➔ **EXAMPLE** For instance, you might give a participant more attention when they're supposed to respond one way. You might be more positive, or your voice might change in a way that influences them to act in the way that you want.



Self and Social Awareness: Skill in Action

The self and social awareness skill is an important one for researchers to strengthen in order to avoid problems with research bias, like a self-fulfilling prophecy.



BIG IDEA

As researchers, it is important to keep the phenomena of a self-fulfilling prophecy and the placebo effect in mind, as they can affect how we analyze data from an experiment.



TERM TO KNOW

Self-Fulfilling Prophecy

When the expectation of a result leads to or causes the result to occur.

5. Controlling Analysis

Because the placebo effect and self-fulfilling prophecy can impact the results of an experiment, experimenters use different methods to control for them. One method is what is called the double-blind study, or the **double-blind experiment**. This is when subjects are assigned to groups, and neither they nor the experimenter knows who is in each group.

IN CONTEXT

When a double-blind experiment is being conducted to test a new drug, the participants are placed into one of two different rooms, and neither they nor the experimenters know which of the rooms contains the actual drug that is being tested.

In this way, the experimenter doesn't know which group is taking the actual drug, and so they are prevented from collecting data in a way that leads to a self-fulfilling prophecy. In addition, the participants don't know if they are actually taking the drug that's being tested, so a placebo effect may be less likely.



Problem Solving: Skill Reflect

Using the problem solving skill in the same way psychological researchers do can help you make more informed decisions in your own life. You can think about your options more objectively by asking yourself about how your actions match your expectations.



TERM TO KNOW

Double-Blind Experiment

An experiment where subjects are assigned to groups and neither they nor the experimenter knows who is in experimental and control groups.



SUMMARY

In this lesson, you learned that **Researcher bias, observer effect, placebo effect, and self-fulfilling prophecy** can all affect the results of psychological research. You learned that self and social awareness can impact bias and that strong problem solving skills are a reason someone may use a placebo.

These factors can be minimized through the use of tools that are less invasive, like hidden cameras. Also, data can be collected using a **double-blind** study to help achieve less bias results. Lastly, you reflected on how you can use your problem solving skill the same ways researchers do as you tackle problems in your own life.

Good luck!

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