



ACTIVITY 6

Understanding Well-Being Through Research

READING



Well-being is influenced by many factors, such as health, life events, relationships, and cultural backgrounds.



6: UNDERSTANDING WELL-BEING THROUGH RESEARCH

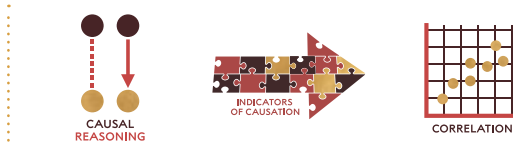
GUIDING QUESTION

What study designs and analysis methods increase confidence in results?

INTRODUCTION

When trying to understand the world, people often look for simple cause-and-effect explanations. For example, flipping a light switch (the cause) makes a light turn on (the effect). However, many real-world causes, such as those affecting well-being, are more complex. For example, switching to a healthier breakfast might cause a person to live longer, but many other factors—such as genetics and lifestyle—could also play a role. In this activity, you will read about how scientists design and analyze studies when there are complex factors in order to prevent misleading results.

CONCEPTUAL TOOLS



MATERIALS LIST

FOR EACH STUDENT

- STUDENT SHEET 6.1
“DART: Research Methods
in the Harvard Study
of Adult Development”
- 3–5 STICKY NOTES

PROCEDURE

- 1 Read about how studies are designed and how their results are analyzed. Use the Read, Think, and Take Note Guidelines as you read.

READ, THINK, AND TAKE NOTE GUIDELINES

Stop at least three times during each section of the reading to mark on a sticky note your thoughts or questions about the reading.

As you read, use a sticky note from time to time to:

- explain a thought or reaction to something you read.
- note something in the reading that is confusing or unfamiliar.
- list a word from the reading that you do not know.
- describe a connection to something you’ve learned or read previously.
- make a statement about the reading.
- pose a question about the reading.
- draw a diagram or picture of an idea or connection.

After writing a thought or question on a sticky note, place it next to the word, phrase, sentence, diagram, drawing, or paragraph in the reading that prompted your note.

After reading, discuss with your partner the thoughts and questions you had while reading.

- 2 After you complete the reading, work with a partner to complete Student Sheet 6.1, “DART: Research Methods in the Harvard Study of Adult Development.”
- 3 Compare and discuss your answers with those of your partner. Be ready to share your thoughts with the class about how each research method can increase confidence in results.

READING

THE HARVARD STUDY OF ADULT DEVELOPMENT

What makes for a happy life? Some people think that having more money will make them happier, and others believe a healthy lifestyle is the key. Scientists have spent decades studying well-being, tracking people's happiness to understand what factors affect it, and which factors have the greatest impact.

One of the longest-running studies on human well-being, the Harvard Study of Adult Development, followed participants from their teenage years into old age to explore what influences happiness. Beginning in 1938, researchers collected detailed data on participants' health, income, jobs, relationships, and overall well-being. They used medical exams, interviews, and even brain scans to analyze patterns in happiness over a lifetime. Unlike many studies that ask people to remember past experiences, researchers gathered data in real time and over many years. This made the findings more reliable. The data was used to look for associations between happiness, physical and mental health, and lifespan.



The Harvard Study of Adult Development tracked individuals from adolescence to old age to compare factors that affect well-being.

There are many interesting stories about people who participated in the Harvard Study. Some people who seemed to have it all—wealth, good health, or a great career—ended up struggling to be happy. Others who faced tough situations, such as poverty or illness, experienced greater happiness as they aged. One participant, Leo (not his real name), led a simple, steady life. Like many of the young people of that time, he served in World War II. When he returned from the war, he went home to care for his aging mother. He stayed in his hometown for the rest of his life, working as a history teacher and dreaming of becoming a famous writer. The study's current director, Dr. Robert Waldinger, said that his predecessor thought that Leo was so boring. Yet, according to the study measurements, Leo was very happy. Data such as Leo's eventually provided researchers with many insights.

STUDY CONCLUSIONS

After decades of research, the Harvard Study revealed that wealth and physical health influence mental well-being, but they are not the strongest factors. Financial security matters, but beyond a certain income level, wealth does not have a strong influence on well-being. Good physical health supports well-being, but by itself does not guarantee it. The Harvard Study found one factor that stood out above all: social connection. The strongest predictor of long-term well-being was having meaningful, supportive relationships. Dr. Waldinger summarized the findings by saying, “People who stayed the healthiest, lived the longest, and were the happiest were the ones who were most connected to others.” People with strong friendships, family bonds, or romantic relationships also tended to have lower rates of heart disease and diabetes and less cognitive decline in old age.

The scientific community had more confidence in the study’s findings because of its clear results and careful design. The researchers used four well-established study design elements and analysis methods to help rule out alternative explanations—measuring effect size, using a large sample size, comparing consistency across settings, and accounting for confounds.

MEASURING EFFECT SIZE

Effect size is the strength of an association between two variables, such as a correlation or the difference between two groups in an experiment. Larger effect sizes give researchers more confidence that their findings are not due to chance. Correlation coefficients and differences in averages between groups are both types of effect sizes.

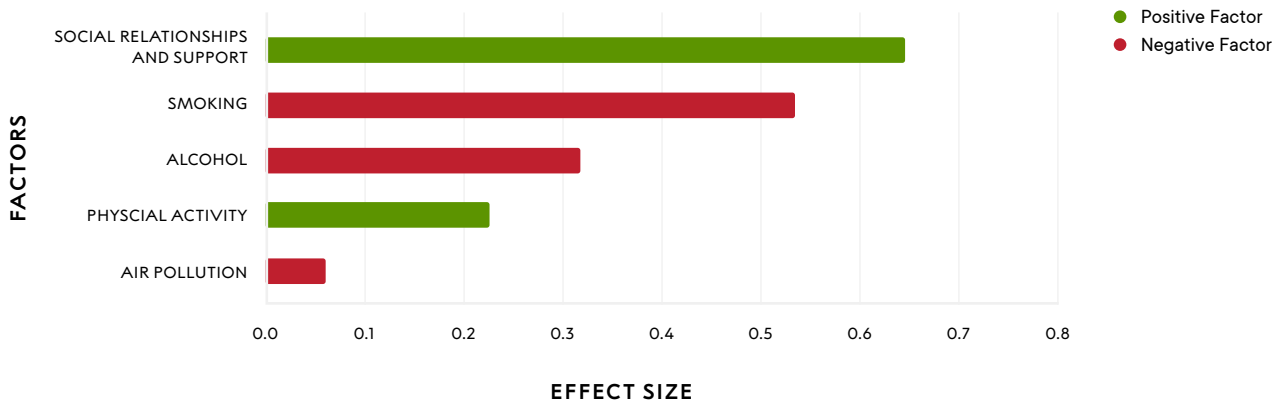
Researchers use effect sizes to compare how strongly different factors affect outcomes. The Harvard Study found that social connection had a larger effect size on well-being than other factors such as wealth. Since patterns of wealth over time did not strongly correlate with changes in happiness, the study suggested that income had a small effect size on well-being. In comparison, having supportive social connections had a stronger correlation with happiness across all socioeconomic classes—reflecting a larger effect size. The study also found that social connection was more strongly associated with how long a person lived than lifestyle factors such as smoking, alcohol use, or exercise. Data from other studies have confirmed these findings, as shown in Figure 6.1.



Dr. Robert Waldinger is the current director of the Harvard Study of Adult Development.

FIGURE 6.1

Relative Effect Sizes for Different Factors on Length of Life



USING A LARGE SAMPLE SIZE

A **sample size** is the number of individuals participating or items included in a study. Having a small sample size increases the chance of misleading results. If only a few people are studied, their unique differences might make the findings from the data less accurate for a larger population. By increasing the sample size, these individual differences average out and make the results more generalizable. While the initial sample size of the Harvard Study was relatively small (268 participants), the study improved over time by adding more participants. Today, the study includes 1,300 participants. This helps ensure that current and future findings are more reliable and can be applied to a larger population.

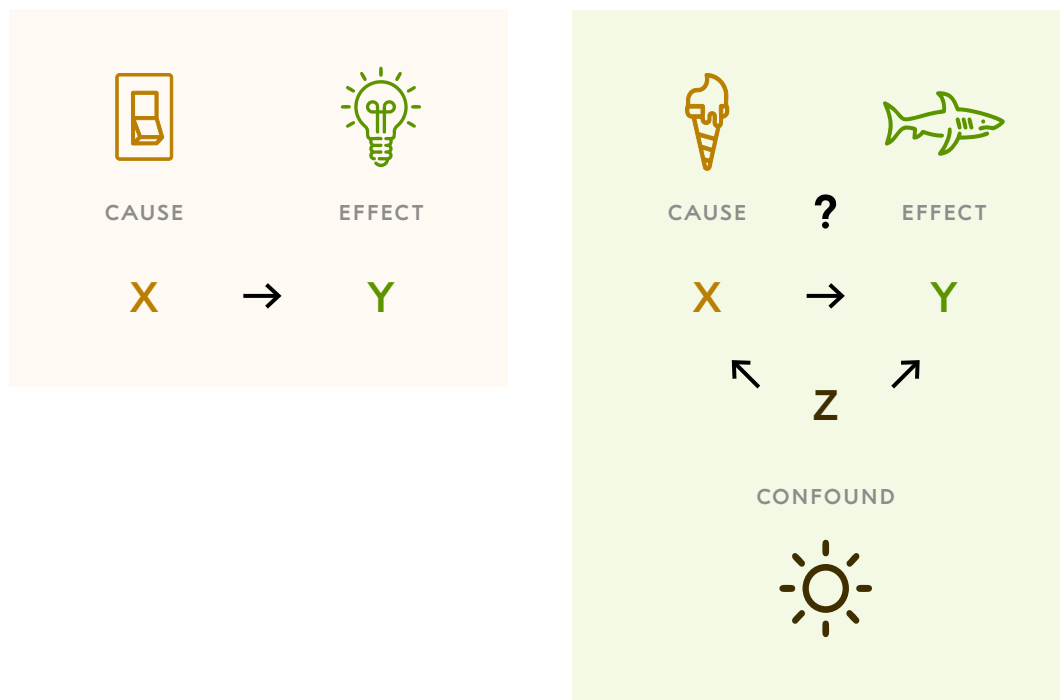
COMPARING CONSISTENCY ACROSS SETTINGS

To make sure their results apply to everyone, researchers often design their studies to compare results between different types of people and different situations. The Harvard Study began with students at Harvard University and then added participants from low-income neighborhoods in Boston. This was intended to examine whether the study's findings would be similar for people with different social and economic backgrounds. However, even the newer participants were all white male individuals from Boston. This raised concerns about whether other factors—such as gender, ethnicity, and location—also impacted well-being. To further improve the study, the researchers expanded it to include women and people from different backgrounds and places. Their findings were consistent across groups: happiness in life was associated with meaningful social connection across locations, ethnicities, income levels, and genders. For example, for both men and women, happiness increased as they spent more time with people they liked.

ACCOUNTING FOR CONFOUNDS

One of the challenges of studying complex topics such as well-being is that an association can occur between two variables without one directly causing the other to change. In Figure 6.2, the diagram on the left shows a simple cause-and-effect relationship (a light switch turning on a light). The diagram on the right represents the example of ice-cream sales (X) and shark attacks (Y). In the example of shark attacks and ice-cream sales, both variables increase at the same time, but the cause is a third variable, such as warmer weather (Z). In this case, the warmer weather is causing both the increase in ice-cream sales and more people going swimming in the ocean, and more people swimming in the ocean increases the likelihood of shark attacks. This is called a **confound**—a factor that can distort or hide the relationship between two variables being investigated in a study.

FIGURE 6.2
Simple Cause and Effect vs. A Hidden Confound



Confounds can impact just the possible effect or both the possible cause and the possible effect. This makes it more difficult to determine whether there is a cause-and-effect relationship.

When studying well-being, the Harvard Study researchers had to consider many possible confounds, such as personality traits, life events, social and economic backgrounds, and cultural differences. The researchers checked if these factors could be confounds by comparing results for different subgroups in the study. For example, they found that the positive association between social relationships and physical health was just as strong for both low- and high-income participants. This was also true for male and

female participants. This suggested that neither wealth nor gender explained the association between social connection and well-being. By tracking various factors over time, the researchers were able to control for many possible confounds.

LESSONS FOR TODAY

So what about Leo, the study participant who turned out to be among the happiest? His life seemed quite ordinary compared to other participants. Leo never achieved his dream of becoming a famous writer, but he had strong and supportive connections with his family, his school community, and beyond. These relationships brought him real and lasting happiness. Leo is a good example of how social connection plays a key role in happiness.

Scientists don't rely on just one person or one study to form conclusions. They use many studies and a broad range of evidence to identify cause-and-effect relationships. Today, the link between social connection and well-being is widely accepted in the scientific community. It is supported by many studies that back up the findings of the Harvard Study. While the Harvard Study didn't analyze race, other research has found that strong social connections are one of the biggest factors in happiness, no matter a person's race, income level, or cultural background. Additionally, many of these studies also used experiments. Experiments are a stronger approach for investigating cause and effect than observational studies, such as the Harvard Study, because in experimental studies, researchers test for causation rather than just looking for an association.

New technology and changing ways of life make the conclusions from the Harvard Study even more important today. Researchers are studying how changes in the way people communicate, the use of social media, and how societal pressures impact social connection and well being. Just as it did for the Harvard Study, investigating how these factors affect well-being could offer valuable insights into improving well-being for individuals and communities.



Social interactions have changed since the introduction of smartphones and other technologies.

BUILD UNDERSTANDING

- ① The Harvard Study of Adult Development was a longitudinal study, meaning that it tracked participants over time, which helped strengthen its findings. What other study design elements or analysis methods made the study's results more reliable? List at least four and describe how each helped strengthen the study's findings.
- ② The Harvard Study of Adult Development found that well-being is strongly associated with social connection. How does this impact your ideas about which well-being strategy might work best for Salas High School?
- ③ The Harvard Study reported a correlation between social connection and well-being. Which of the following reasons could explain this association? (Choose all that apply.)
 - a social connections (X) increase well-being (Y)
 - b well-being (Y) increases social connections (X)
 - c being kind (Z) increases both social connections (X) and well-being (Y)

For each reason that could be true, draw a diagram showing the possible cause and effect between X, Y, and Z. Label and explain your diagram(s).



Strong social connections are essential—not just for happiness, but for health and resilience.

CONNECTIONS TO EVERYDAY LIFE

- ④ Scientists who study the effects of loneliness are researching the following strategies to help people feel more connected:

- improving social skills,
- finding more chances to interact with others, and
- changing negative thoughts about social situations.

Which of these strategies could you use in your everyday life, and how do you think they could help you build stronger social connections?

- ⑤ Researchers are studying how social media affects our well-being, but this is complicated because people use social media in different ways and for different amounts of time. Evidence suggests that using social media to connect with people can support well-being, while using it too much or to compare oneself to others can lower well-being. What might be some examples of using social media in ways that promote positive connections?

EXTENSION

The World Happiness Report is a yearly study that explores what makes people happy in different countries. Read the online chapter provided by your teacher to explore topics such as the happiness trends across countries and why people often underestimate how much others care about them. Share what you learn with the class through a presentation.

KEY SCIENTIFIC TERMS

confound

effect size

sample size