

Ripple Effects in Systems

by Sophia Tutorial

WHAT'S COVERED

In this lesson, we'll return to our discussion of systems, and take a closer look at how all the parts of a system relate to each other. In particular, we'll focus on:

- 1. Interconnectivity and the Ripple Effect
- 2. Positive and Negative Changes
- 3. The Ripple Effect and Conflict

1. Interconnectivity and the Ripple Effect

As you learned in a previous lesson, a change anywhere in a system causes change throughout the entire system. This is because of the ripple effect. If you've ever thrown a stone in a pond, you know that there is a ripple effect throughout the water; just one stone causes a change in the water. Or if you've ever had a mobile hanging over your head, and you tugged on it, every part of that mobile begins to move.

The ripple effect is a term that describes what happens in a system when something changes with one of the components in that system.

As you know, a **system** is made up of components, or separate individual parts that behave in certain ways, whose behavior causes events that lead to an outcome.

These components are interconnected; **interconnectivity** refers to the influence of these components on one another and how their connection affects the system.

It is because of this interconnectivity that the ripple effect occurs. The ripple effect can happen as a result of any change to one of these components (e.g., something being removed, something being altered, or something being added).

TERMS TO KNOW

System

A set of components whose behaviors affect one another, causing a sequence of related events leading towards an outcome.

Interconnectivity

The degree of relatedness or mutual influence between a system's components and their behavior.

2. Positive and Negative Changes

The effect a change has on a system can be**positive**, meaning increased efficiency, or **negative**, meaning decreased efficiency.

IN CONTEXT

Consider your car as a system. You depend on this system to run efficiently. When you're trying to get from Point A to Point B, you notice your car is not running quite as well. You then discover that the problem is low pressure in your tires; there's been a change in your car's tire pressure. This change is affecting the overall way your car drives, your ability to get to where you need to go, and your gas mileage.

If you change the tires, the issue is of course going to improve. But right now, there is a negative change to the system because you are losing air in your tires. On the other hand, if you decide to add a GPS system to your car, this could result in a positive change because you're able to get to your destination more efficiently and use less gas.

Changes in human systems, such as organizations or families, can also be either positive or negative.

★ EXAMPLE Within a family, consider a new baby as a change added to the system. In most cases, a new baby will bring joy, happiness, and a sense of completion to the family unit. On the other hand, consider what would happen if somebody in the family gets sick with a long-term illness.

That illness is going to have a ripple effect throughout the system that could be negative for many family members, just like the new child will cause a positive ripple effect for those in the family who have been anticipating the birth.

☆ EXAMPLE Within an organization, consider if your management has made a change to the computer system that everybody depends on to get his or her work done. If the change is an upgrade, it's going to have a positive effect on how the team gets its work done because the change is designed to increase ease and efficiency.

Conversely, if the organization has been laying people off, the remaining team members will have to take on extra work, and they may feel overloaded. They're now doing twice as much as before, which is a negative change.

So those kinds of changes—whether something is removed, altered, or added—have a ripple effect in human groups as well as any other system.

☆ EXAMPLE You decide that you're going to give up sugar. This is a small change, but it has an overall impact on your health that you maybe didn't expect. Not only do you lose weight, but you've lowered your cholesterol. When you went to your dentist, your teeth looked better because you weren't eating sugar. That one small change had a more significant impact on a variety of things in the overall system of your body.

Positive Change

Movement of a system's performance towards greater efficiency or capacity.

Negative Change

Movement of a system's performance towards reduced efficiency or capacity.

3. The Ripple Effect and Conflict

Minor changes can also have a significant impact in the context of conflict.

☆ EXAMPLE Say there is a conflict between two people at work. It may start out small, but this conflict could have a ripple effect. Person A is in conflict with Person B, and both talk to their friends about what's going on. Those people talk, and this inevitably results in a rumor mill. Pretty soon, the morale within the organization is not very good because people are taking sides.

☆ EXAMPLE Or consider what might result from a minor inefficiency somewhere in an organization. There is something inefficient in terms of how things are being processed in the mailroom. While that inefficiency is in one particular department, it is rippling throughout the whole organization in the way information is getting to people.

🔶 BIG IDEA

Changes to just one aspect of a system will have a ripple effect throughout the entire system, making either positive changes or negative changes.

SUMMARY

In this lesson, you learned about interconnectivity and the ripple effect within systems: Because all the components of a system are interconnected, or relate to and affect one another, a change to one component affects the entire system. You now understand that there can be both **positive and negative changes** to a system as a result of adding, altering, or removing something within the system. Even minor changes will affect the entire system, and this **ripple effect can occur as a result of conflict** as well. A small conflict or inefficiency in one area of a system can easily spread throughout the whole system and thus negatively impact productivity. Good luck!

Source: Adapted from Sophia tutorial by Marlene Johnson.

TERMS TO KNOW

Interconnectivity

The degree of relatedness or mutual influence between a system's components and their behavior.

Negative Change

Movement of a system's performance towards reduced efficiency or capacity.

Positive Change

Movement of a system's performance towards greater efficiency or capacity.

System

A set of components whose behaviors affect one another, causing a sequence of related events leading towards an outcome.