CHANGE SCIENCE BASICS

Definition and Elements of Change

THE DEFINITION OF CHANGE

The definition of *change* is the transformation or alteration of the current state of being (or state) to a different state of being as it relates to a person, place, or thing or as it relates to the interrelationships between persons, places, or things.

The easiest way to understand a definition of change is through a well-known Albert Einstein Quote - "Nothing happens until something moves."

Thus, every time something, (whether it be a person or a thing) moves from one position to another position, transforms into something else (for example, gasoline becoming carbon monoxide in your automotive engine or the food you eat being digested in your stomach), or is somehow modified (for example, ice melting into water), you have change. While you might need to read the definition a couple of times to understand it, the definition of change is really pretty simple. Yet the implications are enormous! You should now realize that all that we know and all that we experience are, in fact, based on change. I realize this is a very bold statement so let's look at it more closely.

Change is all around us, constantly and continuously occurring on a universal basis. From the motion that is taking place at the subatomic level to the movement of the stars in the sky, and from the thoughts that are generated from the firing of the neurons in your brain to the freezing and melting of water at the North Pole, we are constantly observing and experiencing change. The definition of change reinforces that all other sciences exist because of change. Physics to chemistry to behavioral science all depend on change as an underlying requirement. You cannot have motion in physics or chemical reactions in chemistry without having change. Nor would the study of people's actions or their interrelationships with each other in behavioral science be possible without the underlying concepts associated with change.

The definition of change also highlights how the amount of change that is occurring every second, even millisecond, around us is almost scary, even incomprehensible. The extent to which change is taking place and the dynamics surrounding change give the impression that the ability to truly understand change, much less harness change, might be totally impractical or even impossible. It might be this overwhelming feeling of complexity that to date has driven society's inability to fully deal with all the change around us.

However, by building off of the definition of change with the establishment of some additional basic principles and concepts, we can harness a better understanding of change. Plus, these principles and concepts will not only improve our understanding of change, but will also allow us to enhance our everyday lives when dealing with change. We will in fact, be able to improve our potential to obtain the desired change that has so often been elusive.

I also think that many of you will be surprised at how simple some of these principles and concepts surrounding change science are to understand. That is not to say understanding them

will be a slam dunk, but you will not have to be a scientific genius to develop a sufficient level of understanding to make them useful to you in your everyday life. Some of the most complex issues we deal with everyday are often based on some very simple concepts. For example, when you look at the complexity of the weather, it is hard to believe that much of it can be explained by the simple law of thermodynamics or that the complexity of the tides can be so easily explained by the gravitational pull of our moon.

THE ELEMENTS OF CHANGE

There are three basic elements associated with change:

1. *Defined change* is the first element of change and represents an identification/definition of the exact change you want to obtain or examine.

It is important to clearly identify and define the specific change in the state of being that you wish to obtain or examine. Keep in mind that you not only must clearly define if the change is associated with a person, place, or thing or the interrelationship between persons, places, or things, but also must describe the current state of being and the state of being that will exist after the change occurs. Some examples of a defined change include:

- The motion of a person or object from one location (the beginning state of being) to another location (the ending state of being). This could include a person walking from point A to point B, a ball rolling down a hill, or the movement of an electron around the nucleus of an atom.

- The modification of a person or object such as the sculpting of a statute (the ending state of being) out of a block of stone (the beginning state of being) or the change in a person's appearance from before a haircut to after a haircut.

- The transformation from one substance to another substance such as creating whipped cream (the ending state of being) from cream (the beginning state of being) or the transformation of carbon dioxide into sugars using sunlight through the photosynthesis that occurs in plants.

- The change in the interrelationship between things such as the change in the interrelationship of air outside a bicycle tire (beginning state of being) to the air inside of the bicycle tire (ending state of being) after the tire has been inflated.

Figure 1-1a is a graphical depiction of our first element of change representing the burning of a piece of paper. It shows a defined change with a beginning state of being of a piece of paper fully intact and an ending state of being represented by a pile of ashes created from the burning of the paper.

**Figure 1-1a Defined Change Of Burning A Piece
Of Paper**

Beginning State Of Being = Piece Of Paper

Ending State Of Being = Ashes
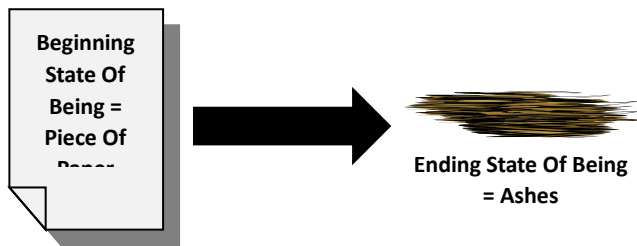
**A Defined Change = the <u>specific</u> change under
consideration out of all the possible change that
exist**

Of course, with so much change constantly occurring around us the examples are endless. And it is exactly this magnitude in the amount of change occurring that makes it critical to clearly define the change that we are interested in obtaining or examining. That is why the first element of change is to define the change so that there is no confusion as to what the next two elements of change are associated with.

2. *Defined process* is the second element of change and represents the identification/definition of the exact process that was used or will be used to obtain the defined change under examination.

In order to move from one state of being to another state of being, a process must occur. Definition of this process includes an identification of any factors that will be required, including the sequence of activities and actions that need to take place, in order to move from the beginning state of being to the ending state of being associated with the defined change.

Note that in change science we will use the term *process factors* when referring to the specific variables, elements, activities, or other types of factors necessary for a specific process to occur.

These process factors can include anything from a specific amount of a chemical or other substance to a certain amount of sunlight to a certain range of temperature. But in every case, process factors need to be all-inclusive when establishing the defined process that will be used to obtain the defined change.

It is also very important to recognize that there can be more than one process to select from as the defined process to use for a given defined change. For example, if someone wants to move from location A to location B, he or she might be able to choose from various processes including running, walking, or driving between the locations. Any one of these individual processes could be selected as the defined process to achieve the defined change of moving from location A to location B.

However, the process factors for each potential process will be different. Therefore, the process factors become a major differentiator when selecting which process to use.

As depicted in Figure 1-1b, a defined process of "combustion" can be used in our example of burning a piece of paper. The defined process of combustion allows us to move from the beginning state of being to the ending state of being for the defined change of burning a piece of paper.

**Figure 1-1b Defined Process Of Combustion**
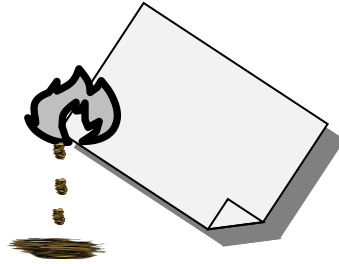
A Defined Process = the <u>specific</u> process used to obtain the defined change out of all the possible processes that exist

3. *Defined implementation* is the third element of change and represents what conditions must exist in order that the actual execution/implementation of the defined process can take place and how those conditions will be obtained**.**

Just knowing what defined process is required to obtain the defined change is not enough if the defined process is never implemented. A defined process can be 100 percent accurate; but, if it is not implemented, then the defined change will never take place. Lack of defined process execution results in a lack of defined change. The following examples might help:

- Let's say the defined change is to boil water. So, the existing state of a pot of water is 70 degrees Fahrenheit, and the desired state is 212 degrees Fahrenheit. The defined process is to use a gas burner on a kitchen stove that is turned on high to increase the heat of the water in the pot from the existing state (70 degrees) to the desired end state (212 degrees). However, just having the pot of water in the same room with a stove that has the gas burner turned on high will not be enough to obtain the defined change. It is not until the pot of water is placed onto the gas burner on the stove (the defined implementation) that the defined process can actually take place and the desired end state can be obtained.

- What about our example of burning a piece of paper (the defined change) using combustion (the defined process). Just having a box of matches sitting on a table next to a piece of paper will not be enough to obtain the defined change. As depicted in Figure 1-1c, it is not until a match is ignited and placed to the paper that the defined process is implemented and there is the ability to obtain the defined change from the execution of the defined process.

**Figure 1-1c Defined Implementation Of Lighting
Match And Holding It To The Paper**
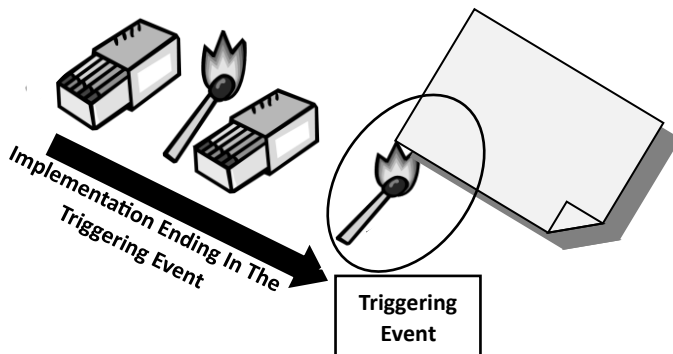
**A Defined Implementation = the specific
implementation used to obtain the conditions
required to support the defined process**

The key is that just having a defined process is not enough if that process is never implemented. A defined change is always contingent on having both an accurate defined process and the implementation of that process. So, the defined implementation defines the specific factors, "*implementation factors,*" that must be present, including the activities and actions that must take place in order to implement the defined process.

Implementations have two facets. The first facet is that of defining the specific condition that must exist in order for the specified defined process to execute. This condition is called the *triggering event*. The examples from above included the specific condition of the lighted match next to the paper as shown in Figure 1-1c and the specific condition of the pot of water on the lighted burner. It is important to note that a triggering event is the specific condition that exists that triggers the execution of a specific defined process and is NOT the process or processes that produces that specific condition.

In other words, having the pot on the lighted burner and having the lighted match next to the paper represent conditions that exist at a specific point in time. It is these specific conditions that actually start the defined process of combustion of the paper and the defined process of thermodynamics for the boiling of the water. Therefore, the triggering event is NOT the process of putting the pot on the lighted burner or the process of lighting a match and placing it next to the paper. Instead, the triggering event is one of the end conditions (results) of the defined implementation. The triggering event is that part of the implementation that describes the "final how" the defined process will be executed (in other words, the defined process starting point). The rest of the defined implementation works backward from the triggering event and represents the second facet of an implementation.

The second facet of a defined implementation describes the rest of the "how and what" needs to happen in order for a specific defined process to execute. The second facet describes, among other things, how the triggering event condition will come to be. In essence, this second facet of the implementation defines what process or processes and other implementation factors need to take place (or have taken place) in order for the execution of a specific defined process to be successful.

In our examples above, it is the placement of pot of water onto the lighted gas burner on the stove and the ignition and placement of the match next to the paper indicated in Figure 1-1c that represents the second facet of the defined implementations.

Figure 1-1d represents a summary of our three elements of change using the example of the defined change of burning a piece of paper.

Figure 1-1d Change Elements Associated With The Defined Change Of Burning A Piece Of Paper
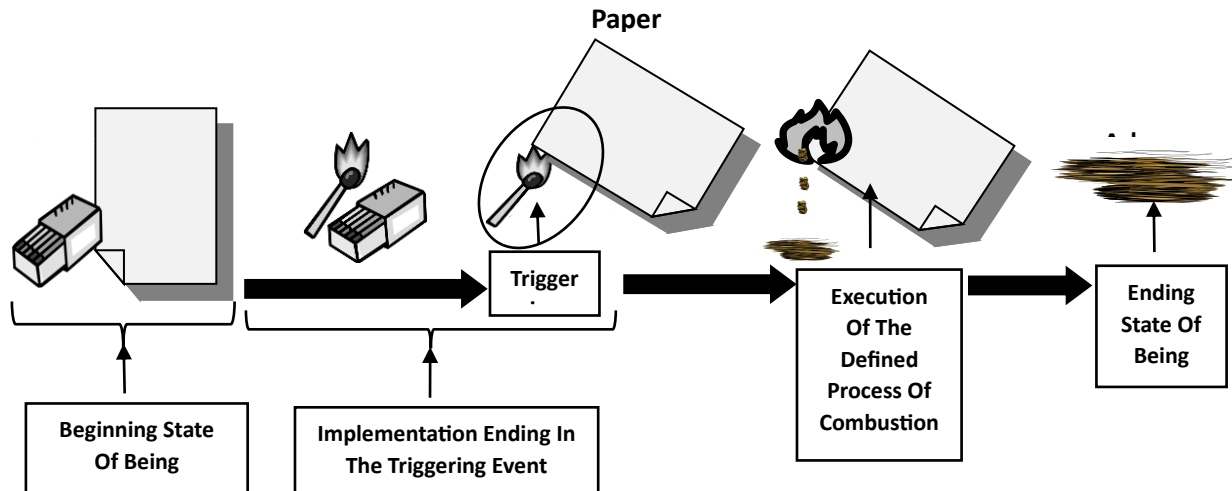
While it is hard to imagine that all the change occurring around us can be broken down into just three key elements, the ramifications associated with these three elements are significant. The dynamics and interdependency of these elements will often determine if a change will, in fact, occur. For example, you can have a defined process that will not produce the defined change in any set of circumstances (that is, the defined process is wrong and will never produce the defined change or vice versa, an incorrectly selected defined change will never result from a specific defined process). You can also have a proven process that given a specific set of circumstances can never be implemented.

Some of you might now be wondering why, if I have a defined process and a defined implementation that have been proven to work, then why don't I always observe a consistent defined change. In other words, if Mary wants to obtain a certain defined change and successfully implements a defined process to obtain that defined change, then why does Sam not obtain that same defined change even though he uses the exact same defined process and defined implementation? Or, why does Mary obtain the defined change one day and not the next day even though she used the exact same defined implementation and defined process on both days? We can use change science to help answer these questions by next focusing on the implications that exist for change because of the environment associated with that change.