



WHAT EXACTLY IS THIS THING CALLED “SAFETY?”

We throw the word “safety” around very casually, but most of us never stop to think about what it actually means. The meaning may not always be clear and easy to understand. I call that blurry safety thinking. Let’s talk about the meaning of safety so that it may come into clear focus. Safety means to be protected from harm to the extent practical under certain conditions. The words represent conditions for safety to be valid and the choice of words are very important to learn to properly apply its meaning.



“Protected from harm” means that no one will get hurt or killed or that some precious asset won’t be destroyed. Note that an asset could also be other things that you don’t want to compromise, like your money, health, relationships, precious belongings, and so on. “To the extent practical” means that the things that you do to be safe must be reasonable and not compromise what you are trying to do. Bicycles are very safe when they are setting in our garages, but that is not what bicycles are meant for – they are to be ridden! Likewise, it is not reasonable to install airbags on a bicycle, as that would compromise the very idea of a bicycle. “Under certain conditions” means the context of the situation needs to be taken into consideration when safety measures are to taken. It does not make sense to require rear seat airbags in a car purchase when the driver is a single driver and never carries occupants in the rear seats – so that might be deemed wasteful.

In practice, I prefer to think of safety as being the sum of two key elements, each of which must satisfy the definition in order to be valid and useful. Here is a useful formula to remember when thinking about safety:

SAFETY = PREVENTION + SURVIVAL

Prevention is what we do to not allow an accident to happen in the first place. Examples of preventive measures are things like studying for an exam to prevent getting a failing grade. Likewise, anti-lock brakes in a car prevent (or minimize) the likelihood of losing control of the car on slippery roads. Survival is the measures that are taken after an accident has occurred to minimize losses. Continuing the examples, survival after a failing test grade might be taking extra credit to offset the bad grade. In the car example, the car’s airbags minimize the chances of injury or death should the brakes not be sufficient to avoid an accident. When prevention and survival are combined, they make a powerful force to make systems safe and to protect lives and assets.

Both prevention and survival are required because nothing is foolproof. This is because systems, people, and conditions change over time. This is why



fighter jets have ejection seats. Sometimes the conditions change in real time as a result of the unsafe situation that is unfolding. For example, airbags clearly save lives in most car accidents, but there are some accident situations where airbags end up killing the person it was meant to protect. We can never know all the conditions under which we are operating or when exactly a preventive or survival measure will not work out as planned. Typically, the more combined safety and prevention measures we take, the safer we are.

The following table lists some basic prevention and survival measures encountered in everyday situations needing safety.

Situation Needing Safety	Prevention	Survival
Car accident	Don't drink and drive	Airbags
Stroke	Keep cholesterol low	Medication
Cutting grass	Wear eye protection	Corrective surgery
Marriage	Not cheating on spouse	Marriage counseling
Grades	Good study habits	Repeat the class
Birth Defects	Avoid alcohol and drugs when pregnant	Special needs school
Reputation	Don't slander others	Apologize when wrong
Career	Get a good education	Work two jobs and nights
Investments	Diversify portfolio	Work in retirement
Smoking	Avoid smoking	Live on oxygen tank
Provide for your family	Practice good diet and exercise habits	Life insurance (just in case)
Mountain climbing	Wear spiked shoes	Use a tie-off rope
Baby choking to death	Food cut small	Heimlich Maneuver
Identity theft	Don't give out information	Freeze your credit report

As you can see, the idea of safety is much broader than simply avoiding getting physically hurt or killed. There are many things that we want to protect by thinking safely. By now you should also see that survival often involves merely getting through a situation. Rarely can you ever completely prevent losses once they have occurred. Survival often ends up being some deteriorated version of what the original intention was. That is why prevention is so important – best to avoid a situation than have to deal with a situation. As Benjamin Franklin so keenly stated hundreds of years ago: “An ounce of prevention is worth a pound of cure.” I hope this short essay has brought the idea of safety into clear focus!



- Mark M. Kowaleski