



Virtual Learning

Aerospace Engineering

A Successful Failure

May 18, 2020



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Lesson: May 18, 2020

Objective/Learning Target:

Students who enter the workforce must understand the “ethics of work” in a way that relates to their personal lives as well as to professional environments that they will be a part of daily.



Bell Work:

Can you think of something that you failed at that actually made you better at something?

Let's Get Started:

Watch the following clips about the Apollo 13 and the Space Shuttle explosion. Both of these are examples of failures from NASA:

- [Apollo 13 Mission - Story of The Successful Failure - NASA's Mission Moon](#)
- [Space Shuttle Challenger Explosion LIVE TV](#)

In this lesson we will talk about how some of our greatest failures in life can actually become the very things that make us better people. In the manufacturing world, failure is not an option for the products we make. Think in terms of Boeing and the airplanes they make. Flight failure is simply not an option. Machining businesses don't get paid for parts that don't pass inspection. Welders don't get paid for welds that don't pass x-ray testing. In the manufacturing world, parts have to be made that are deemed safe, function properly, fit where they should and on and on the list goes.



Most of us go into manufacturing careers because we enjoy the challenge of making the best parts or laying down the best quality weld.
BUTTTTTTTTTTTTTTTTTTTT, the reality of life in manufacturing is that parts do fail inspection, welds do fail x-ray tests, and objects made to the best of our abilities “fail” at times.



The best and most successful companies try to minimize this failure because of obvious safety risks, economic impacts, liability, and customer dissatisfaction. Fail enough times when the stakes are high and you will soon be out of a job and be out of business. However, learning how to “successfully fail” is a good thing in life. This is how people improve, companies grow, and how manufactured goods and processes get better.



All of us who make things can relate to the heartache involved when these products failed through either their design or manufacture. Those of us who make parts need to give thought to doing everything in our power to make our products the best they can be. We may not make parts that have the same consequences from failure as in these movie clips. Regardless, we owe it to our customers to give them quality products every time a part goes out the door. And if we fail we have to learn from these failures. Successfully failing is a part of life that has to be learned.

And it's not easy!



A Successful Failure Understanding

You are to write your thoughts to the following questions. 1 page typed is the format we will use. Proper spelling and punctuation are expected. All papers will be typed. No exceptions. You are to freely give your opinion even if your opinion disagrees with the teacher. Make an effort and write a well thought out paper. In the real world of work you will be paid to give an excellent effort, each and every day. Marginal effort in the workforce results in you getting fired, your company suffering the consequences of your poor effort, and customers not getting what they deserve and paid for. So with that being said, start out with good work ethic on the papers you write.



A Successful Failure Understanding

1. Describe a time in life when you failed at something that meant a great deal to you. Give the details of the situation and how did failing make your feel?
2. What did you learn from the situation described in question 1? What was the good that came from it? Was it a successful failure and why?
3. In the Apollo 13 clip, what struck you most about how the men on the ground dealt with the pressure of “failing” in their mission to bring the astronauts home?



A Successful Failure Understanding

4. What impressed you about the work ethic of the men on the ground who were trying to get the astronauts home? What did their attitudes look like in terms of their view of the task at hand?
5. How do you think the people involved with the failed design and manufacture of the parts involved in the space shuttle disaster felt about and dealt with their major Failure?
6. Do you think you have what it takes to “successfully fail” in the world of manufacturing? If so, what trait in you is going to help you with this issue? If not, what trait in you is going to cause you to fail?