



PLTW Engineering

12/Problem Identification

April 7, 2020



12/EDD

Lesson: **4/7/2020**

**Objective/Learning Target: Students will be able to
Identify Problems that can be solved with Research and
Design Development**



Problem Identification

In order to create a new product or process, we as engineers and designers must identify problems that need to be solved.

Without a problem that we can identify, our time spent may well be wasted.

But where do problems come from? How can we identify them?



Problem Identification

Often we can look to our immediate surroundings or to our immediate family and friends to reveal problems that need to be solved.

When we ask others we can generate more problem ideas and we can generate validity in the quantity of those problems.



Three Phases to Problem Identification

We can break Problem Identification down into 3 Phases.

- Problem Identification
- Problem Validation
- Problem Justification



Three Phases to Problem Identification

Problem Identification

To identify a problem for us to create a product for we can usually ask simple questions.

Examples could be: What is something I hate doing every day?
Or What if I had something that would make this job easier?

If we look for an example of these questions, one might be:
I wish I had a better way to tighten that hard to reach bolt on this tractor.



Three Phases to Problem Identification

Problem Validation

To validate the problem we must find out if anyone else has the same or similar problem. The more people who have this problem, the better our solution will be validated.

We need to gather some information to validate our problem.

- History and background of the problem
- What experts in fields related to this problem say
- We can send out a survey to everyone who shares this problem



Three Phases to Problem Identification

Problem Validation

Based on those 3 steps, we can generate validity for our problem.

Going back to our example of the tractor bolt. We may find:

There are seven other owners of the same tractor who have indicated they also have a problem tightening that hard to reach bolt.



Three Phases to Problem Identification

Problem Justification

To justify our problem we need to confirm the following:

- There is no current viable solution
- There is no affordable solution currently available

To confirm these statements we can research the following:

- Patents
- Internet merchandizing
- Specialty shops
- Other advertisements in trade and industry publications



Helpful Links

[Google Patent Search](#)

[United States Patent and Trademark Office](#)