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### W3: The Ten Mighty Questions of EDD

1. What exactly is the problem that I wish to explore?

I want to explore the STEM toy market with a focus on girl toys, a lot of girls' STEM toys are inferior to the ones designed for "boys" and often just being colored pink and marked up in price. Additionally, what they classify as "STEM toys" for these young girls often consist of household appliances, such as hair dryers or vacuum cleaners, while boys often get cool robots.

2. Who, in fact, says that this really is a "problem" that needs to be solved?

I reckon a lot of girls in STEM themselves would classify this as a problem and any parents who don't like being charged extra for inferior products.

3. What are all of the current methods or actions that are being used or have been developed in an attempt to solve this problem?

The current STEM toys for girls on the market as previously mentioned are often just as expensive or more expensive than their boy counterparts with inferior products--seriously, what little girl wants to build a vacuum cleaner?

4. What exactly is my best idea concerning the solution to this problem, and why is it unique in contrast to current or past solutions?

My best idea is to design products that are actually more STEM and encourage little kids to engage with critical thinking. Personally, I think a lot of students who aren't in engineering are due to the stigma about how difficult it is, when a major part of engineering has always been creativity. If we can encourage more kids at a younger age to explore engineering, more students will be more comfortable with engineering.

If we are unable to make a unisex robot that appeals to both girls and boys, at the very least we almost certainly can make a more affordable version of girls' STEM toys.

5. How can I create a tangible prototype/solution for my idea within the confines of my personal skill and the resources I have available?

A prototype is easy to make. I know how to model on CAD, 3D print, create circuits, assemble, and the majority of the skills necessary to design a toy with reasonable expense.

6. What appropriate methods for testing my prototype can I create, conduct, and document with the resources I have available?

To test out our prototype, our best method would likely be trying to get young kids to build them and see how much they engage with it, such as at elementary schools with the discretion of the teachers.

7. How can I obtain real, valuable data and present that data to prove any of the following: that my solution worked, that my solution made little or no difference compared to the results of existing solutions, or that my solution was unsuccessful despite a merited attempt?

In a test trial, if we also provided some samples of what's currently on the market, we can gauge if ours is more engaging to our targeted demographic than what was on the market. Even if they were equal, if we were able to produce it cheaper, that is still a success.

8. If I cannot gather real data by experimental means, how can I justify that my solution has merit?

I feel as if it should be common sense that girls' STEM toys which are literally just household products such as vacuum cleaners or a coffee mixer appear to be inherently sexist.

9. How do I best present my entire idea to an audience and justify my actions, thoughts, and results concerning the project?

By reiterating a lot of points made in this document, such as the sexist and expensive products on the girls' STEM toys markets, I believe we can justify the point of designing better toys for hopefully cheaper.

10. How can I document my work so that what I have learned can be shared beyond this course?

Through methods such as weekly reports, a gantt chart, and my e-portfolio, we can log and document my work of creating a superior product.

# Ten Mighty Questions Project Flow Chart

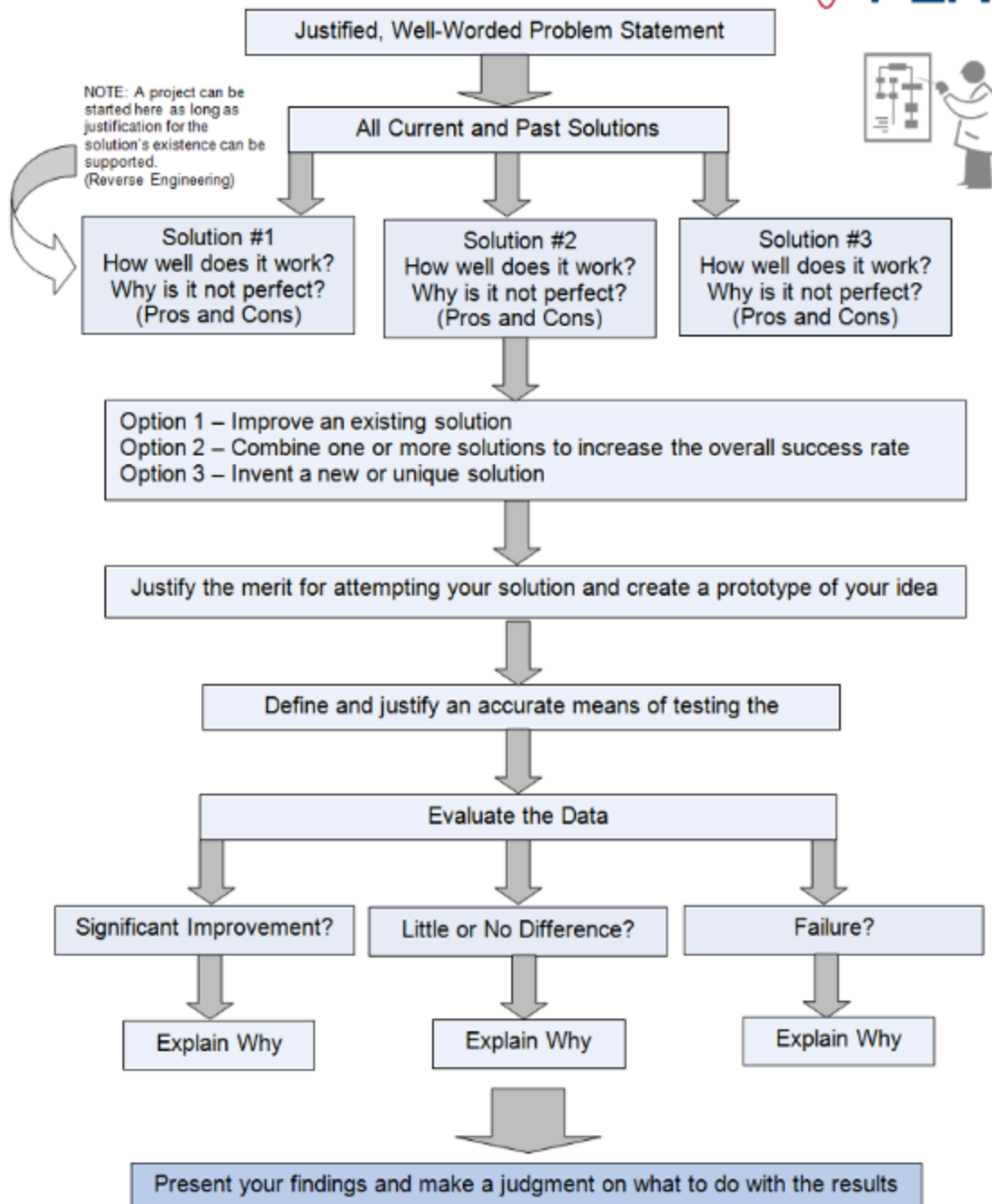


Figure 1. Ten Mighty Questions Project Flow Chart