

Semester 1 Final Exam

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1. So far in this project Noah and I have completed the definition and justification of a problem through brainstorming possible problems that are justifiable. Following this we delved into heavy research to ensure our problem is not only solvable but has not already been solved. This research included patent, prior solution, and market researches. Noah and I were blessed to have vast amounts of material available to us both virtually and through face to face contact in some cases. After all the research we compiled what we had gathered so far in a project proposal that in essence sums up all the data and information we had gathered thus far. We were then able to present our findings in a midterm presentation.
2. During this semester I most enjoyed any activity that involved reaching out for expert support and backing. From the general research to the market research Noah and I were extremely fortunate to have knowledgeable experts chomping at the bit to aid us in furthering our project. Some of the most memorable moments include my very first phone call regarding the project with Rich Benoy, an entrepreneur, inventor, and former professional hurdler. He taught me that there is always something that can be made better in any product. Some of those things have already been attacked by many others before, but there is always a flaw no one has yet tried to solve and that is where an ambitious engineer can find his niche. I also thoroughly enjoyed my experience with Robert Johnson, Co-Founder of LetsRun.com. He allowed our market research to truly flourish by posting our survey on the front page of his website. Most recently I was able to get in touch with Mike Walker, V.P. of Research and Development at Omni-Lite Industries. He presented us with invaluable blueprints of Omni-Lite track spikes. These blueprints will thoroughly aid Noah and I in our product design.
3. The part of this project I have least enjoyed is the periods of time that included extensive writing and documentation. When I was sending and receiving emails

from professionals it felt like our project was moving right along; however, when Noah and I had to grind through long tedious aspects such as the project proposal and other long typed papers it felt as though our project would never get finished.

4. Initial Problem Statement:

The small metal spikes that are screwed into the bottom of performance racing shoes are tedious to replace and difficult or even impossible to remove from the sole of the shoe due to dirt, grime, overtightening or stripping of the spike in the threading. This can lead to frustration, underperformance, and even injury of the athlete.

Our initial problem statement was found to be confusing to those who may not know much about track or cross country. We also discovered through discussion with other athletes that this problem spans all of sport. Not just track and field. Sports such as soccer, football, baseball, and even golf have similar issues regarding their performance footwear.

Modified Problem Statement:

The spikes that are screwed into the bottom of performance athletic shoes are often tedious or even impossible to remove from the sole of the shoe due to collection of dirt, grime, or stripping of the spike in the threading. This can lead to frustration, underperformance, and even injury of the athlete.

As you can see Noah and I addressed these issues through simplification as well as changing the statement from calling out "racing" shoes to looking more toward "athletic" shoes in general. Even after this modification our problem statement still needed work.

Final Problem Statement:

The metal spikes screwed into the bottom of performance athletics shoes are often tedious, or even impossible to remove from the sole of the shoes due to collection of dirt, grime, or stripping of the spikes in the threading. This can lead to frustration, underperformance, and even injury of the athlete.

In order to finalize our problem statement we ensured that we were addressing the piece in question, the spike, as accurately, precisely, and simply as possible in order to bring as much clarity as possible.

5. There is a large importance placed on communication in an engineering project. Engineering is widely done as a team and in any team situation communication is paramount. Not only is there a need for communication during aspects of the project, there is a large weight placed on the need for

communication after. This is why such an importance is placed on documentation so that others can understand how one came to the solution they did during the course of their engineering and design process.

6. A. Market Research- I had dipped into the need and use of surveys during my time in AP Statistics class but in EDD I truly learned through experience how to create and market a survey in order to gather accurate results. This is an invaluable skill that is often forgotten about in the design process.
B. Project Proposal- I had always understood that a certain level of documentation was needed in order to gather investors but I never really knew what that looked like. The Project Proposal was something that seemed quite daunting when I first began but I then was able to realize how easy it can be to put together given that thorough research had been done prior.
C. Resume- I never thought that a one paged paper would give me so much trouble. Resumes are one of those things that you can never think too deeply about. You think that your choice of font is not good??? Well, then it probably isn't. You think that one of your achievements doesn't quite stack up with your others and could probably be left out??? Well, then it probably should. When an employment opportunity is on the line every inch counts when it comes to setting yourself above the rest.
7. A. Balancing Strengths- Noah and I knew from the beginning of this project that if we were to set down a path regarding either of our sports then the one whose sport was not involved with our project would be slightly in the dark. Knowing this Noah was still ready and eager to tackle this difficulty. We learned early on that where he may lack in natural knowledge he makes up for in effective documentation and myself on the contrary. This Ying and Yang I believe is essential for any partnership.
B. Time Management- There were days neither Noah nor I were on top of things. And every time this happened the work caught up to us. Noah and I are both very good at working under pressure however. The way he and I managed our time may be different but that doesn't mean it can't be effective.
C. Communication- As with anything in a team communication cannot be something that is looked over. Noah and I learned to communicate often by many means whether it be face to face, email, or text. We kept each other in the loop and progressing.
8. A. Working under Pressure- I had always known that I was a procrastinator. This semester just seemed to set that further in stone. Regardless I learned that when it is time to get down to business I am able to shut out anything that may be going on physically or mentally and finish what needs to be done.
B. Passion- This semester I learned that my drive and motivation largely comes from my passion toward what I am setting out to work on. This project has excited me like none other. At times when I could really see the pieces coming

together I was hyped every day to get to work. At times when the end goal was far from sights I found it to be a struggle to get through those hard times.

C. Professionalism- My parents have always raised me to be polite and capable of holding a conversation. The older I get the more invaluable I find these lessons to be. This project really gave me a glimpse into the world of professionalism and I am grateful for how my parents had prepared me for this world.

9. I have thought a lot about what I would define as success for this project. Looking forward, based on the groundwork Noah and I have set and what lies ahead, I feel as though our goal should be to have a working prototype for Noah and I to have manufactured and able to be used in my shoe during competition in this coming track season. I really feel like that would be an experience I would never forget, to be able to use something that I actually created. To be able to relish in the successes of my very own brainchild.