A Reflective Journey: Navigating Your Cumulative Experience at Iowa State University

1. Embracing the Bigger Picture

My experience at Iowa State University has been profound and has fundamentally shifted my approach to problems. From the first semester, I took classes that allowed me to go above and beyond the classroom to find answers. I struggled and thrived in some classes, while I could easily get by in others. The classes I struggled in were usually because of group projects where not everyone contributed equally. I often had to step into a leadership role to push things forward, and those moments taught me more than the smooth projects ever did.

There were also times when ethical issues arose in small ways, like deciding whether to do an assignment correctly or just get it done quickly. I found myself leaning toward the right way, even when nobody was checking. It made me realize that being an engineer is not only about technical skills but also about responsibility. I didn't think ethics would play a big part in schoolwork, but those experiences shaped how I want to handle my professional life.

2. Beyond the Classroom: Tapping into the Richness of Resources

Regarding resources outside the classroom, I often turned to YouTube for explanations. It wasn't always the most detailed source, but it broke things down in a way that was easy to digest and more visual (especially for classes such as Data Structures and Algorithms). As an SI Leader for Data Structures and Algorithms, I would share those same videos with students because I wanted them to see the subject as fun and understandable, given the right materials. The formal lecture slides were useful, but they didn't always click for everyone, and I wanted to fill that gap for the students who came into my sessions.

Another big help was working with friends and classmates. Talking through assignments made challenging problems less stressful and often revealed details I had missed when working independently. Sometimes one of us would know a trick to the problem, and other times we had to seek out the "smart" friend who always just happened to know and understand every class. Those conversations made me appreciate how much stronger learning is when it's shared instead of when done in isolation.

3. Embracing Lifelong Learning Beyond the Classroom

Outside the classroom, I participated in a student organization (HACC), attended career fairs, and even participated in research work. These experiences showed me that learning does not always need to end when our classes are over. Meeting people from different fields during career fairs and trying out things I had never done before showed me that there is always something new to pick up. It made me open up to taking more risks and trying to participate in areas I wasn't comfortable with at first.

One example of such a case was diving into cybersecurity certifications independently. I had to learn outside of class, build my own labs, and fail a couple of times before finally figuring things out. Those experiences (among other things) taught me the value of continuous learning and

how it prepares you for challenges that you can't always predict. It gave me the confidence I needed and reminded me that I can keep adapting even after I leave college.

4. Pioneering Growth Through Adaptation

I had to refine my skills to handle something new in a few different moments. For example, as an SI Leader, I couldn't rely on what I knew or learned from the class. I had to adapt my knowledge to explain things simpler and answer unexpected questions from students. That forced me to see the material I was teaching differently from how the professor taught the students. This also applied to my research work, where I had to adjust quickly by learning tools and methods I had never used before, since it was in Wireless Networks, and apply them to problems with no step-by-step answers.

Adaptation also played a considerable role in group projects where plans often changed last minute. Sometimes I had to shift my focus from managing the technical details to managing people or solving problems that weren't directly related to my part of the project. It taught me that engineering isn't just about being technically competent and flexible. Those lessons made me more comfortable with the idea that the challenges and needs of a project will keep changing, and the best way to deal with them is to keep building new skills and being malleable as an engineer.

5. Crafting a Narrative of Growth

If I were to restart my undergraduate journey, I would spend more time finding mentors earlier. I often figured things out by myself or with friends, but I know I could have grown much faster with some guidance. I would also push myself to ask more questions in class instead of keeping quiet when I didn't fully understand something. Although I have picked these skills up with time (especially asking questions in class), I still wish I had had the courage earlier.

At the same time, I definitely wouldn't change the struggles because they made me who I am today. The times I had to lead a group that wasn't working or figure something out from scratch gave me skills that lectures alone could not. Those challenges showed me what kind of engineer I want to be and taught me how to handle problems even when I don't have all the answers.

6. A Glimpse into the Acquisition of Knowledge

A recent engineering topic I learned was secure coding. At first, the documentation was overwhelming and full of technical details that didn't make sense. I started by searching the internet, then watched videos, and finally experimented in a lab-based environment.

The hardest part was dealing with failure in the lab environment. Sometimes the program broke, and I had no clue why. I had to go back, review all the code line by line, and try again. It took patience, but in the end, I realized that my process of combining reading, videos, and practice worked. It showed me how to approach learning new topics step by step. It also taught me that

everyone absorbs topics and materials quickly in some areas better than others; for me, that was with the help of visual representations (YouTube).

7. Transformative Applications of Knowledge

A moment where I applied theoretical knowledge in practice was when I had to use what I learned in algorithms to optimize the code for a project. At first, the program was slow and didn't work as needed. Using techniques I picked up in class, I rewrote certain parts of the code to make it run efficiently and in a more optimized manner. That was when I realized that knowledge from classes was finally translating into solving real-world situations.

Persistence also played a significant role when solving problems without direct answers. For example, during my research work, I ran into an error nobody around me knew how to solve. I had to piece together solutions from different websites and try other ways to resolve the issue. Honestly, that error is still happening and has been going on for weeks now, but I am determined to figure out how to solve it. This experience is definitely teaching me that engineering is not just about knowing the theory, but being able to keep trying different solutions until something finally clicks.

8. Evolution of Learning Strategies

In my first couple of semesters, due to the classes I was taking, I mainly just memorized notes and tried to give the exams. That worked for some classes but failed terribly for others. Over time, I decided to start breaking problems into smaller steps, draw them out on my iPad (if I need to understand them visually), and sometimes even explain the concepts to others to know if I was on the right track. That approach helped me understand the depth of each class better when compared to just the basic details. In addition, with AI, it has become much easier to learn in depth and truly understand each class.

I also had to adjust how I studied depending on different types of classes. For coding classes, practice was the only thing that always worked. For theory-related courses, discussions with friends or looking at videos usually made more sense. When I changed my strategy, I realized there isn't always one way to understand the material. The subject and situation determine what method works best, and I found that being able to change strategies made me a better engineering student.

9. The Path Ahead: Continuous Development

Looking forward, I know I still need to grow in cybersecurity, hardware system design, and research methods. I plan to improve by pursuing certifications (with hands-on labs mainly), building side projects on my GitHub profile, and reading more research papers. Those areas would apply to the career field I would like to get into, so I want to keep working on those.

I also want to keep my learning strategies flexible, which would mean staying open to new tools, working with mentors, and joining organizations that may be out of my comfort zone. My goal is not just to keep up with the technology field but to stay ahead by being curious. I know that

continuous development will be a lifelong process, and I want to ensure I approach it with the mindset I picked up during my time at Iowa State.