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Portfolio Reflection Essay

This paper is a reflective essay about the work in my portfolio and my experience at the University of Saint Thomas over the past four years. I will be summarizing the work in my portfolio and a problem of interest to me. I will then reflect on how my work connects to the problem, the common good, and the University of Saint Thomas' values and missions. The work in my portfolio has been strongly influenced by my overall experience at Saint Thomas. The lessons and values instilled in me through my education are heavily reflected in my life and work.

My signature work portfolio is a summary of my education over the past four years. It contains a brief glimpse of my technical skills and personality. It is comprised of an introduction and an about me video. It also contains my resume and three examples of past projects. The first is an object-oriented program that creates a virtual 'Etch-a-Sketch'. The user can interact and draw with it. The second is a library inventory management system. It keeps track of books and their qualities. Finally, there is a research report on the piping plover population. This was a semester-long study where my team and I analyzed what factors might contribute to the steady decrease in the population.

A problem that I am very interested in is the lack of women in science, technology, engineering, and math education and work fields. As a woman in computer science, I see firsthand how disproportionate the gender distribution is. Right now, "only 20% of computer science professionals are women" (ComputerScience.org). This gender gap is complicated and comes from historical, societal, and cultural constructs. There is a stereotype that computer science and other STEM fields are masculine. When I chose my major I was told to be prepared

to face discrimination in my education and workplace. From then on, I have been motivated to help solve this problem, even if the difference I make is small.

The effects of this gender gap in STEM are broad. Firstly, it perpetuates the stereotype that STEM fields are for men. Second, it creates a negative loop. Women don't go into STEM because there are not many women in STEM. It creates a lack of female role models for young women to look up to. There is a lack of inspiration for women to go into the field. Finally, the lack of inspiration combined with the intimidation of going into a field that is predominately men is a strong deterrent. From my personal experience, I seriously deliberated before committing to my major.

The work in my portfolio and the issue of the STEM gender gap are strongly connected. Firstly, as a woman in STEM, I am helping to close the gender gap and break the negative loop that creates it. My presence in classes and confidence in my work is comforting to other women thinking about choosing computer science. I know I was more comfortable when there were other women in my classes. I also do my best to support other women in my classes and bond with them. My work and overall success in my major are proof STEM fields are not only for men. I hope my projects are an inspiration to other women. I want to motivate young girls and women to choose a major they are passionate about even if it is daunting. I believe my work and experience serve as an example for other women.

My computer science work over the past four years is also connected to this issue of the STEM gender gap and bias in the field. From past courses, I have learned about how algorithms can have unintended consequences like bias. Bias can be created by complete accident but if one is not looking out for it, it can occur. Part of the problem with these bias algorithms is that they are created from a group that is not diverse. If a group of men is working on and testing a

program that identifies faces, the program might be bad at identifying women. As a female in computer science, I add diversity to the field and projects that are created. This will help to eliminate bias.

Before I discuss the connection between my portfolio work and the common good, I must first describe what the common good means to me. I find it to be rather subjective. According to Wikipedia, the common good "refers to either what is shared and beneficial for all or most members of a given community, or alternatively, what is achieved by citizenship, collective action, and active participation in the realm of politics and public service" (Wikipedia). The University of Saint Thomas tells us how to act in service of the common good. "Inspired by Catholic intellectual tradition, the University of St. Thomas educates students to be morally responsible leaders who think critically, act wisely, and work skillfully to advance the common good" (Saint Thomas). By following these guidelines, one can bring good to the most amount of people while doing the least amount of harm.

The piping plover research report in my portfolio is a perfect example of benefiting the common good. The work done in that report was to help stop the plovers from going extinct. The extinction of this bird would throw the whole waterfowl ecosystem out of balance. Protecting the environment benefits all of humanity and harms no one. The other works in my portfolio have a more subtle relation to the common good. The library management system could benefit librarians and make it easier for all people to get access to books and educational resources. The 'Etch-A-Sketch' is simply a fun little game to bring joy to children and adults. While it is not groundbreaking, it does benefit the common good simply by making people happy or evoking feelings of nostalgia. All these projects were created following the guidelines given to me by the University of Saint Thomas. They all required critical thought whether that be from analyzing

data in the plover report or creative problem-solving in the two programming projects. They also all required me to act wisely. This might be from performing experiments and handling the equipment with care for the plover research or simply by starting the programming projects with ample time to meet the deadlines. Finally, they all required skillful work. The plover research was a lot of responsibility. An entire species was relying on the work we had done. The experiments and analysis of data had to be done diligently. The programming projects required ingenuity and adaptability. I would often get stuck at a roadblock, not knowing how to get to the next step. By asking for help and staying persistent, I was able to accomplish and submit skillful work.

The University of Saint Thomas values are based on Catholic tradition and focused on advancing the common good. The first value is the pursuit of truth. This means Saint Thomas values the discovery and spreading of knowledge. The second is academic excellence, meaning that good work will be rewarded. The third is faith and reasoning. This means that they value using faith combined with reason to benefit society. The fourth is dignity, meaning they value each individual and the contributions they bring to the world. The fifth is diversity, this means that Saint Thomas values inclusion. The sixth value is personal attention. This means they value a caring culture that looks after each member of the community. Finally, the seventh value is gratitude. Saint Thomas defines this value as: "We celebrate the achievements of all members of our community in goals attained and obstacles overcome, and in all things give praise to God" (Saint Thomas).

The values instilled in me from the University of Saint Thomas are connected to my portfolio work. All three projects are related to the pursuit of truth. I gained knowledge through them and spread that knowledge through my portfolio and presentations. They all were

motivated by academic excellence. I received good grades on all of these projects because I put time and effort into them. All three projects were also influenced by the combination of faith and reason. Computer science projects and research reports require a lot of logical thinking and reason. They also require a degree of empathy. This could be imagining what a library would need in its management system or caring about the fate of plovers. This empathy combined with reason allowed my projects to benefit society. The plover project was influenced by Saint Thomas' dignity value. I had to value each plover and honor how each of them benefited the environment. The plover paper and the programming projects were created with diversity in mind. I would often work with team members who were different from me. I treated all my team members with respect and valued their perspectives. Finally, gratitude was a part of all my projects. All three projects in my portfolio took a lot of work. As a computer science major, the work I do can be extremely difficult and frustrating. I have learned to be grateful when I overcome a challenge or finally understand something new.

My time at the University of Saint Thomas has shaped who I am as a person and how I handle challenges. The gender gap in STEM fields is a big problem to me because it does not advance the common good or align with the values of Saint Thomas. My motivation to help close the gap comes from the values and lessons I have learned through my education. My portfolio and this paper give a brief glimpse into my personality and reflect my desire to fix this issue. What I have learned from Saint Thomas is also reflected in the work I have accomplished. My projects were created with the goal to advance the common good and meet the values instilled in me. I believe these values will not only influence my school work and portfolio. I hope to carry them with me into the workforce and life in general. They are guidelines on how to act morally and justly through everything I do.