Reflection on Academic Journey

Evan Jenkins

Old Dominion University

Dr. Gordon-Phan

April 25th, 2025

ABSTRACT

This essay aims to reflect on and discuss the skills I acquired in the classroom, at work, and through other experiences throughout my college career, and how they have prepared me for advancement in career readiness. It also serves as a platform for explaining the components of my ePortfolio project. This will be examined from an interdisciplinary perspective to highlight how skills are developed through the coursework of various disciplines, nurturing a more well-rounded and adaptable skillset. The interdisciplinary approach allows one to take a step back and understand the topic from a broader viewpoint. In this case, this means understanding that an assignment carries deeper value beyond its main topic. The skills I have developed over these past few years that I feel prepare me most for a career are technical skills in cybersecurity and computer science, effective communication through various formats, and workplace soft skills. These skills will be addressed in the context of a selection of artifacts that exemplify those skills, including lab work, code snippets, graphic projects, presentations, and certifications.

Reflection on Academic Journey

The journey of life through higher education has granted me the opportunity to develop the skills needed to be prepared for a post-graduation career path. While I have learned many different skills these past few years, both in the classroom and outside of it, there are three categories of skills that I have gained that will best serve me to go forward in life. The first category is that of cybersecurity and computer science skills. This involved learning key cybersecurity principles, common tools used in the field, and the processes of computer programming, while also getting the chance to practice these skills through labs and other assignments. The next category would be communication skills. I cannot fathom any job position where being an effective communicator would not be important. In cybersecurity, for example, you need to communicate with the rest of the cyber team, upper management, other departments, and customers. The third category of learned skills I most value is the soft skills that make one a desired member of a workplace. I will discuss these skill categories through artifacts obtained from my life, academic, professional, or otherwise, to highlight why I value these skills the most.

Cybersecurity and Comp Sci Skills

Technical skills lay the foundation for detecting, analyzing, preventing, and defending against cyber threats of all kinds. This is why, first and foremost, I value the technical skills I learned in courses from my major in cybersecurity as well as my minor courses in computer science. These skills include familiarity with the common operating systems, networking protocols, data protection, and programming. Going beyond this is the experience in using some of the most important cybersecurity tools and techniques, such as firewalls, John the Ripper for testing passwords, Wireshark for network analysis, encryption tools, and Nessus for checking

known vulnerabilities (DeVry University, 2024). With my minor in computer science, I learned the deeper workings of a computer and programming, which is important for a career in cybersecurity for automation and scripting purposes. Not only is knowing these technical skills important, but also to effectively apply them in real-world scenarios.

Artifact 1: Cybersecurity Lab

The first artifact of this category I chose to highlight on my ePortfolio was a lab assignment on password cracking from the course Cybersecurity Techniques and Operations. I chose this lab specifically because it encompasses a lot of technical skills that would be useful for a career in cybersecurity. The first task was to crack user passwords in a Linux system. The Linux operating system is far from the most widely used operating system, but its importance for cybersecurity cannot be understated. Linux is packed with strong security tools, a powerful command line interface, a diverse range of distributions, and is quite commonly used for servers and embedded devices (Bangalore, 2024). I had to create six users with passwords ranging from simple to complex. From there, I launched a dictionary attack, using a predefined list of words, and was able to crack the simpler passwords, showing just how vulnerable poor password choices can leave your device or network. The second task was cracking passwords in the Windows operating system, which is an extremely common operating system. The neat part of this task was uploading a program to the Windows virtual machine remotely. The final part of the lab was capturing and decrypting network traffic to be analyzed in Wireshark. So, in just this one lab, I was able to experiment with penetration testing in two particularly important operating systems, deal with encryption, remote uploading, and network packet analysis.

Artifact 2: Memo to Governor Writing Assignment

The course that this artifact came from was Cyber Law, which I remember because it shows how interdisciplinary study can be applied to cybersecurity. This course did not deal with various cybersecurity tools or navigating a virtual machine through its command line interface, but instead it focused on the topic of cybersecurity from a legal and criminology perspective. This course had me take a step back and understand cybersecurity from a broader point of view.

The particular assignment from this course that I chose to include in my ePortfolio was a writing assignment where I was to assume the role of an advisor to the governor of Virginia and to persuade the governor of why the state of Virginia needed to pass a comprehensive data protection act. I started by establishing data privacy as an important right for the citizens of Virginia. I then created a sense of urgency by noting how dependent modern life is on the Internet. I also found some Pew Research Data to show that many Americans felt concerned about how their data was being used. From there, I broke down the acts that other states and countries had passed in recent years to address the issue. I also drew attention to Virginia's proximity to Washington, D.C., as well as the importance of the Pentagon and Naval Station Norfolk could make citizens of the commonwealth particularly attractive targets for cybercriminals.

Artifact 3: C++ Code Snippet

With my final artifact of this category, I wanted to draw attention to my minor in computer science, which involved a lot of programming-heavy courses. Not only did it involve opening up a code editor and typing out lines of code, but it also involved learning the program development lifecycle and design approaches. With cybersecurity being an offshoot of computer

science, there is a lot of overlapping importance. Programming can be used in cybersecurity to analyze and reverse engineer malicious software and set up tailored penetration tests, though its use case varies in the field of cybersecurity depending on the specific job position. So, with my final artifact of my section on cybersecurity and computer science skills, I included a sample of a coding project written in the C++ language.

The first part of the project is a header file that serves as a blueprint for a cylinder object. It contains constructors and destructors to initialize the cylinder object and clean up the memory after the object is destroyed, respectively. There are also getters and setters to get the dimensions of the cylinder. It also declares several functions that interact with the data of the cylinder.

The second piece of the code is the implementation file, which reads inputs, calculates the diameter based on the input, and updates the bounding box for the cylinder. Additionally, it displays output, scales the cylinder, and can make a deep copy of the cylinder object.

Communication Skills

It is hard to imagine any career path where some level of communication skills is not necessary, and a career in cybersecurity is no different. Cybersecurity jobs often involve working as a team to manage cyber incidents. You also often have to communicate safe cyber policies with other departments of an organization as well. If your organization has suffered a breach, then it is important to update customers who could have been impacted. It is also important to note that communication can come in many different ways. Communication could be something that is spoken, written, taken in visually, or even a combination of all of those. Communication is also the skill I believe to be the most important in interdisciplinary studies. If you are combining

two or more subjects, it takes effective communication to form and express how all the various disciplines interact. This is why the second skillset I chose to highlight on my ePortfolio was communication skills in various forms.

Artifact 1: Interdisciplinary Research Paper

This paper was the final project for my course in Interdisciplinary Theory and Concepts and is probably the most in-depth writing piece I completed throughout my entire time in college. The topic I chose to study through an interdisciplinary approach was the impact of technological devices on childhood development. This matter combined my background and interest in computers and technology with my work experience in early childhood education. I examined the behavioral, emotional, educational, and health impact of devices on the lives of young children. After examining the topic from all of these different disciplines, I concluded that overexposure to screen time can detract from the development of healthy emotional coping skills, harm sleep and eye health, and negatively impact a child's performance in the classroom. I was also able to draw connections between the issues found by each discipline. For example, from an early age, many children are handed a device to calm them down, thus establishing screen time as their primary coping mechanism, then screen time can lead to eye strain and disrupted sleep cycles, the lack of sleep and eye discomfort can lead to acting out and negative behavior in the classroom, the struggles in the classroom is a stressor in the child's life, and they turn to the coping mechanism they were taught, screen time on a device, and then the cycle keeps feeding into itself. If I had not studied the issue from an interdisciplinary perspective, I would not have ever recognized this cycle and seen the bigger picture of the matter. Drawing these connections and formulating them coherently into one paper was quite a communicative challenge.

Artifact 2: Voiceover PowerPoint

The second article for the skill of communication is a PowerPoint presentation where I also had to do a voiceover explaining each slide. In the grading criteria, the professor specifically pointed out the need to speak on the slide without just reading the content of the slide like a script. So, while still a matter of communication, it was quite different than just typing up a paper or giving a speech. A presentation in general is unique as it needs to be visually engaging, and you need to avoid overwhelming the audience with too much text. My presentation was on social engineering attacks, a type of cyberattack that relies on tricking the victim, such as the classic Nigerian Prince scam. First, I explained what social engineering was and then gave several examples of attacks that fit this category. I then explained some of the psychological angles attackers take that make these attacks so effective. I then explained some recent attacks that relied on social engineering, namely the Sony Breach, which was achieved by the attackers sending Sony employees fake emails and tricking the employees to give up their work passwords. The attackers were able to steal over a hundred terabytes of company data (Mitnick Security, 2016). The challenge with this assignment was to provide information on the slides concisely, while also being able to expand on the slides when doing the voiceover.

Artifact 3: Home Network Graphic

Admittedly, my third communication article was a fairly simple assignment, which was to create a graphic of my home network. It shows how an internet connection comes into my home through a cable to the modem. From the modem, several devices are directly connected through cables, including a Wi-Fi mesh router. The mesh router produces a wireless connection for the personal devices throughout my house. So, while a simple assignment, I believe it strongly

exemplifies the ability of visual communication. Visual communication is important because most people do not have a deep understanding of cybersecurity or computers in general. Visual communication can take complex concepts and make them easily digestible. Consider road signs, which utilize few words, if any at all, but through shapes and colors can convey complex information at a glance. Someone in accounting or human resources probably does not know the best practices of cybersecurity. Since training others is often a key part of a cybersecurity role, you could drown them in technical jargon and long-winded explanations of cybersecurity topics or provide them with a quick and easy graphic of dos and don'ts. I bet the latter would be much more effective. This is important because the vast majority of data breaches are caused by human error, with studies suggesting human error causes up to 95% of breaches (BreachSense, 2024). One person's mistake could compromise an entire organization.

Soft Skills

The final skillset I wished to highlight was the soft skills I would bring to the workplace. Skills such as programming or using a cybersecurity tool can be taught and trained, but it is much more difficult to train the chemistry someone brings to a worksite. I feel most employers would value someone easy to work with and willing to work hard, rather than the highly trained individual who is miserable to work with. Throughout this course, we have discussed a lot about the importance of transferable soft skills such as leadership, teamwork, and dependability. A LinkedIn survey showed that 92% of employers valued soft skills equally or even more importantly than hard skills (Mount Vernon Nazarene University, 2024).

Artifact 1: Leadership Paper

I first wished to showcase my leadership potential, so I included my personal leadership philosophy reflection essay from my Entrepreneurship in Professional Studies capstone course. I used this paper to discuss some examples of leaders I have looked up to throughout my life and the core values that I wish to carry into a leadership position. These values include having passion in your project, being able to rally the team together, to set expectations, and to be appreciative of the effort of the team while empowering them to be the best versions of themselves. Another key part of my reflection is that a leader needs to stand by their leadership principles even when things do not go as planned. You can claim to believe in the principles of your leadership philosophy, but if you discard these principles in times of struggle, do you genuinely believe in them? Leadership is one of the soft skills most sought after by employers, and a common interview question is about leadership experience during difficult moments (Henry, 2019).

Artifact 2: Biology Group Project

Another critical soft skill is that of being able to work in a collaborative team environment. The artifact that I have associated with this was a group presentation from a biology course that I took during my time in community college. It was during the period when things were just starting to get back to normal following COVID, so it was a synchronous, fully online course. So, I had never actually met any of the group members face to face. Before working on the project, they were simply a box with a name in a Zoom call and maybe a voice. So, suddenly we had to get to know each other, plan meetings, and get the presentation done before the deadline a few weeks later. In our first few meetings, we mostly just brainstormed and

planned how we wanted to proceed. We decided that each member was to be responsible for certain slides, while leaving some of the more important parts to be a collaborative effort. Every few days, we would meet back to review each other's progress and help each other out as needed. Overall, the project went smoothly until the day we had to give our presentation, when one of the team members was having connection issues and kept getting dropped from the Zoom meeting. So, on the fly, we had to split up their slides and present them even though we were not prepared for it.

Artifact 3: Collection of Workplace Certificates

The final artifact I included in my ePortfolio was a collection of training certificates I had earned for my current job in early childhood education, which serve as an example of the soft skills of adaptability and self-driven learning. The first certification was so that I would be qualified to administer medicine to the children in my care, after also completing an in-person demonstration test. Since a child who was enrolled in my class at the time had a special medical device, an Auvi-Q, which is similar to an EpiPen, I completed additional training to be able to use that device properly. While recommended, these training opportunities were not strictly required, but I completed them to be able to provide greater value to my workplace and the children in my care. The third certificate was a program for proper food handling, food hygiene, and nutritional standards for each age group. While this one is required, it is still up to me to stay up to date on it and re-complete the course annually in my own time.

Conclusion

My time in college has been a transformative period of my life that has equipped me with three invaluable skillsets: technical knowledge in cybersecurity and computer science, effective communication, and highly desirable soft skills. These skills have helped prepare me for a successful post-graduation career and life. Through a robust interdisciplinary course load, I have developed the technical foundation for the fast-moving world of cybersecurity, communication skills to speak, write, and display information effectually, and the soft skills such as leadership, adaptability, and teamwork to become a valued member of an organization. Combined, these skills will empower me for professional success going forward.

References

Bangalore, K. (2024, January 1). Importance of Linux in cybersecurity - Kavitha Bangalore - Medium. *Medium*. https://medium.com/@kavib/importance-of-linux-in-cybersecurity-d0852b3dc004

BreachSense. (2024, December 8). *How human error causes data breaches*. https://www.breachsense.com/blog/data-breach-human-error/#:~:text=The%20study%20found%20that%20employee,over%20the%20last%20ten%20years.

DeVry University. (2024, January 10). *9 Essential cyber security tools and techniques*. devry.edu. https://www.devry.edu/blog/cyber-security-tools-and-techniques.html

Henry, H. (2019, August 20). *Top soft skills in the 21st century workplace*. Junior Achievement of South Florida. https://jasouthflorida.org/top-soft-skills-in-the-21st-century-workplace/

Mitnick Security. (2016, August 20). *Sony Hack was not all that sophisticated, cybersecurity experts say*. https://www.mitnicksecurity.com/in-the-news/sony-hack-was-not-all-that-sophisticated-cybersecurity-experts-say

Mount Vernon Nazarene University. (2024, May 6). *A comprehensive list of job skills employers value most | MVNU*. MVNU. https://mvnu.edu/blogs/top-10-job-skills-employers-value/