IDS 493 Reflection: E-Portfolio Reflection

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**Introduction**

My e-portfolio enables me to provide a comprehensive self-assessment of my skills and experiences throughout my education at Old Dominion University (ODU). The key objective of an e-portfolio is to develop my knowledge through a format for me to reflect on the educational process and the skills I possessed that derive from critical reflection (Barret, 2007). It provides me the opportunity to evaluate my experiences through an unconventional process since I can upload my work instead of only describing them in a final paper (Nguyen, 2013). Throughout my years at ODU, I have made changes concerning my degree. Although I knew I would major in Cybersecurity, I have switched my minor from Women’s Studies to Criminal Justice. I changed my minor according to the career I planned to pursue. I changed my minor according to the career I planned to pursue. My major in Cybersecurity and minor in Criminal Justice consisted of courses correlated with each other. Through these related courses, I have amassed various artifacts that consisted of lab-based assignments, essays, documenting, enrichment opportunities, and other assignments. According to Bonsignore, “Assessment will be discussed.…. but it is important to note that the purpose of a Career ePortfolio is that it is student-owned for highlighting the student’s best work and marketing his/her academic and career skills (Bonsignore, 2013).” The skills that were integral for me through my time at ODU were technical, writing, and critical thinking skills. This paper will explain how the artifacts I amassed through my education at ODU relate to the skills I developed correlating to my future career.

**Technical Skills**

Technical skills are hard skills that incorporate practical knowledge that I utilize to accomplish assignments. These types of skills require more specialized training and education. Throughout my education at ODU, I have acquired several technical skills, from information technology to advanced encryption. In my ePortfolio, I cannot include a random assortment of artifacts to provide evidence since I will use artifacts pertinent to the skills I want to highlight (Forde, 2009). With working in the digital landscape, possessing technical skills has enabled me to utilize tools and techniques that are imperative for me to have once I go into the workforce. Regarding my major in Cybersecurity and minor in Criminal Justice, it is strongly correlated with my technical skills since I needed thorough knowledge of comprehending how computer systems work and gaining access to various systems and devices. It is necessary for me to adapt changes and improve my technical skills. It is also imperative for me to have knowledge on how to protect my systems and be aware of and deter criminal activity over the internet, Harrington asserts, “The ever-evolving digital age affects cybersecurity more than most people realize. The rate of cybercrimes has grown exponentially and is consistent with the growth of technology (Harrington 2020).”

**CYSE 270 Linux System for Cybersecurity- Advanced Network Configurations**

Linux System for Cybersecurity allowed me to gain experience working with Linux operating systems. Although my courses in the past discussed Linux operating systems through course readings and listening to a lecture, working in a virtual environment helped me understand how Linux works. Throughout the course, the professor instructed me on the fundamental procedures of Linux for Cybersecurity. I performed tasks on the terminal in the Linux-based operating system. I got informed about configuring the settings of Ubuntu by modifying the motherboard with higher memory and optimizing the central processing unit in order to enable me to execute tasks efficiently. I learned to do beneficial work, such as managing file systems, assigning specific permissions to various users, and other tasks to demonstrate my technical skills.

The artifact I chose to showcase my technical skills that would be advantageous for my career is my advanced network configuration assignment from Linux System for Cybersecurity. The purpose of the assignment was to configure the network of the Client Virtual Machine and block outbound Internet Control Message Protocol (ICMP) packets from the Gateway Ubuntu and inbound ICMP packets from the Client Virtual Machine. I executed these tasks on the terminals. ICMP packets are meant to report errors. I configured and assigned a new Internet Protocol Address for the Gateway Ubuntu. Next, I configured the routing table to create a temporary Internet Protocol Address for the Client Virtual Machine. Next, I configured Gateway Ubuntu to forward the traffic from the Client Virtual Machine to the Internet. Finally, I configured the iptables on the gateway Ubuntu to block all the inbound ICMP packets from the Client Virtual Machine by modifying iptables and I configured the iptables on the gateway Ubuntu to obstruct all the outbound ICMP packets that originated from the gateway Ubuntu itself by modifying iptables. This artifact showcased the techniques I used to prevent potential threats. Through this assignment, I acquired technical skills that would protect me from cyber criminals. Blocking ICMP will enable me to prevent others from gathering information from my computer.

**CYSE 301** **Cybersecurity Techniques and Operations- Password Cracking**

Cybersecurity Techniques and Operations has enabled me to learn about using an array of diagnostic software tools and perform techniques that will be integral for me to access systems and collect sensitive information. Through this course, I have investigated and mapped networks. My professor lectured me and assigned labs relating to modifying firewalls to block or accept specific traffic and create intrusion detection rules. Through this course, I have used tools and techniques to perform forensic investigations. I have executed these tasks on virtual machines with operating systems such as Windows 7, Windows 8, and Kali Linux.

With the artifact, I utilized the Metasploit payload, Meterpreter, to gather my target's user passwords. To initiate the attack, I had to perform a technique that would allow me to gain access to the system discreetly, facilitated by embedding it into a file and sending it to the target. Then my target will click the file, and I will have the ability to obtain all the accounts and passwords on my target’s computer. Then on my computer, I will get the encrypted version of the passwords and install the program John the Ripper to decrypt the passwords. The artifact I choose to exemplify my technical skills by creating a backdoor application with malicious code to obtain sensitive data and utilize password cracking software to decipher encrypted passwords. This is imperative for my career path because there will be some instances where I cannot access a device and collect information that would help with my investigation.

**CYSE 450 Ethical Hacking and Penetration- Natas-Level 13-16 Lesson Exercise**

Ethical Hacking and Penetration allow me to acquire information on the fundamentals of ethical hacking and comprehend the laws that regulate ethical hacking. Through this lab-based course, I have worked with several programming languages. I learned various tools and techniques to facilitate a penetration test. With penetration testing, ethical hackers will obtain permission to access an organization's system and discover any vulnerabilities or exploits. My assignments consist of completing tasks in the virtual environment, creating reports, and writing papers on topics relevant to the course, such as passive and active foot printing.

The artifact I utilized to demonstrate my technical skills is Natas Level 13-16 Lesson Exercise. In Brigante virtual environment, I used the operating system Kali Linux. I had to perform tasks using the programming language, Python and used the code editor, Sublime Text. Through this assignment, I had to exploit an upload service and SQL injection with a web application. Although I had several issues with completing the assignment since I had problems with modifying the parameters to have access to credentials for specific accounts on a website, I saw how my modifications impacted the outputs and gave me the results I needed. Natas Level 13-16 Lesson Exercise assignment showcases how I use my technical skills to perform various methods to gain entry to a website with limited information and gather information on how a website can be susceptible to an attack.

**Writing Skills**

Writing skills are a soft skill that I developed through the years. This skill incorporates a variety of hard and soft skills. With some of my courses at Old Dominion that was writing extensive, it gave me the ability to delve into my creative thinking through having had the opportunity to write about topics relevant to my major in Cybersecurity and minor in Criminal Justice. Several of my courses incorporated writing, and I had to be cautious about approaching topics and consider my audience.

**CS 462 Cybersecurity Fundamentals- Pegasus Report**

Cybersecurity Fundamentals is course in the graduate certificate program at ODU. This course is a hybrid of experimental learning and lectures where I had to utilize online tools for cryptography and write essays on potential vulnerabilities. My professor taught me to about several components of networking. I would have to assess and describe the internet architecture and the primary operations of routers and end systems. I would also have learned about how various application attacks and wireless tasks varied, and the security measures used to deter those attacks. I had to recognize the benefits and challenges of tools and techniques used by Cybersecurity professionals. My professor demonstrated different methods for verifying users and keeping information sent over the internet from being disrupted.

The artifact I decided to demonstrate my writing skills is my Pegasus Report. Pegasus is a spyware tool used to avoid detection when operating it and obscures its tasks. Initially I had issues with organizing my paper since the format was unfamiliar to me. My Pegasus Report was in The Institute of Electrical and Electronics Engineers (IEEE) style. IEEE style is commonly used for research papers relating to disciplines in technical fields (Caulfield, 2022). It was the first time I had to write an abstract since I viewed an abstract similar to an introduction. I had to make sure that my abstract was not too specific and provided an informed yet brief overview. I had to make sure that my sources were properly cited too. The in-text citation would have me number each source by the order I put them in when I first add it to my Pegasus Report. It got confusing while writing my paper since I would find more sources related to the points I am trying to make and put the relevant sources with the appropriate headings. I had to renumber in-text citations constantly. My Pegasus Report demonstrates my writing skills because I developed and learned to write research papers in a different format from APA or MLA.

**CRJS 406 Cyber Law-** **Carpenter v United-States**

Cyber Law was a Criminal Justice course that taught me about laws relating to Cybersecurity. Throughout the course, I got to learn about American laws and legal considerations that affect technology and the internet. I analyzed the differences and similarities in applying laws with traditional crime and cybercrime too. My professor provided lectures on how professionals in the field must follow American laws when conducting their responsibilities since there are some limitations.

My essay on Carpenter v United States demonstrates my writing skills since I had to provide research to find American laws and cases pertinent to the court case Carpenter v United States. The court case Carpenter v United States was about the Federal Bureau of Investigations (FBI) utilizing cell site location technology to sentence the suspect Carpenter. Although the Court of Appeals denied Carpenter’s complaints over the FBI utilizing technology to violate his right to privacy, but the Supreme Court agreed with Carpenter and made all law enforcement agencies provide a search warrant when collecting data. I found laws concerning the right to privacy when law enforcement needs to do a search and seizure. I also found laws regarding collecting information on devices and from telecommunications companies. I found a few federal cases with similar issues with privacy but different scenarios because some cases involved using traditional methods to collect information.

**CYSE 425W Cyber Policy and Strategy-** **Cyber Policy 2 Biometrics**

In Cyber Policy and Strategy informed my professor taught me the importance of strategy development and creating policies in Cybersecurity. While taking this course, I had to obtain the knowledge necessary for me to make and implement Cybersecurity policies. Throughout this course, the professor provided several reading materials for me to better understand how government agencies and other organizations correlated with Cybersecurity policies.

My assignment, Cyber Policy 2 Biometrics, showcases my writing skills since the artifact enabled me to explore perspectives on a topic having its benefits and challenges. In the beginning of the course, I had to choose a topic related to the course. Although I came to the conclusion that writing about biometric technology would be my best option to write about, I did not know my stance. While looking for how governments use biometrics to provide security, I also have distinct perspectives on the same topic. Once I gained enough evidence on the two differing perspectives on biometrics, I decided that my stance is governments using biometric technology against immigrants. In the end, I incorporate both perspectives to demonstrate the biometric technology intended use and how governments weaponize that type of technology.

**Critical Thinking Skills**

Critical thinking skills are a soft skill I have been able to improve on during my time at Old Dominion. My critical thinking skills have allowed me to informed and logical conclusions. With my critical thinking skills, I have examined issues and determined if my research or recommendations will comprehensively resolve the problem. With this skill, I learned to recognize how to connect each component of my findings.

**PHIL 355E Cybersecurity Ethics-** **Reflection Ethics**

Cybersecurity Ethics analyzes ethical concerns related to information technology. While taking the class, I learned about several ethical theories such as Virtue Ethics, Contractarianism, Ethics of Care, Confucianism, and other important ethical theories relevant to the course. Then, I would have to apply one of the ethical theories with the course material, which ranged from a superhero comic book to a news report about missiles. I also got to explore a variety of topics too. Some of the topics were about people expressing their freedom of speech over the internet and the impact of technological advancements on society.

The artifact I wanted to illustrate my critical thinking skills is my Reflection Ethics essay. With this assignment I had to utilize my critical thinking skills to reflect how each of the ethical theories and course materials will apply to my life. I made connections to three ethical theories Contractarianism, Utilitarianism, and Ethics of Care. Initially, when I registered for the class, I thought that I would have to listen to lectures and participate in discussions with my class, but I had to analyze how ethical theories relates to real-world issues. This was also explained in my reflection given that as somebody planning to pursue a career as a Digital Forensics Analyst will encounter ethical problems with data privacy and cybercrimes. For instance, the ethical theory of Contractarianism is assessing the ethical obligations that enterprises and other entities have towards individuals. Then I related it to my future endeavors since it is my duty to society to use all legal methods when investigating.

**CRJS 409 Crime and Computer Applications -** **OSINT Lab Assignment 1**

Crime and Computer Applications is a course that enables me to utilize tools and techniques on the internet. I was taught the necessary practices and tools used for gathering, handling, and preserving digital evidence on computers, mobile devices, networks, and cloud computing environments. I was able to participate in verbal and written communication to report my digital forensic discoveries and organize court presentation resources.

My lab assignment, OSINT Lab Assignment 1, demonstrates my critical thinking skills since I had to utilize collection tools to figure out my target’s political affiliation. I had to figure out where to start to gather information on my target. I decided to start by looking for basic information by searching her name, there I became privy to all information relating to the phone number, address, date of birth, and other personally identifiable information. Then, I had to choose which site would give me better chances of obtaining information that would let me know their political party. The public records website enabled me to see emails associated with the name, and I concluded that the email with her name and date of birth would most likely be hers, luckily, I was right. Then, I felt that the best route to take when trying to find someone’s political information, is checking their social media. Although I did not which social media platform my target used, I decided to use email verification software and see which platforms they associated with. Then, I viewed her social media and found several photos of a variety of Democrats. While trying to solve my question, I utilized my critical thinking tools to examine my findings and have a conclusive answer.

**CYSE 368 Cybersecurity Internship –** **Internship Paper 2**

Cybersecurity Internship was a course that considers work experience as a class. Most of the assignments required me to write journals on my experience. Compared to a traditional classroom setting where I obtain knowledge through a classroom environment, I went to an organization to get real-world experience and apply the information I got taught at ODU to my internship.

The artifact I used to showcase my critical thinking skills is my internship paper since my experience working with Police Information Technology in Chesapeake requires me to analyze and solve computer-related problems. According to Reed and Koliba, “Most of what we know about the world and our place in it is derived from learning through our experiences. Certainly we learn a great deal from formal education -- from lectures and books. But are we merely memorizing and absorbing the facts and figures… (Reed, Koliba, 1995).” Through this experience, I gained a better understanding of the tools and methods I learned about at ODU by applying them to the internship. There were some issues that I encountered that would call for me to find the right solutions, for instance, there was a network issue with several of the ports with the docking stations I previously installed but the Systems Analyst II and I had to think about way to solve the issue. Luckily, we found a solution, and everything operated correctly.

**Conclusion**

Through my time at ODU, I have developed technical, writing, and critical thinking skills. Although I still need to acquire some work experience, ODU has given me the fundamentals of Cybersecurity. I have applied some knowledge I gained through ODU outside the classroom. There were a variety of courses I Took through ODU's Cybersecurity program that let me explore from Information Assurance to Cyberlaw and brought on various disciplines. Interdisciplinary learning is important to me through ODU and will be essential once I find my career. There have been when I had to integrate various disciplines into my assignments since it enabled me to utilize varied approaches to solve problems. For instance, when writing my essays for Cybersecurity Ethics I recognize multiple disciplines, such as ethics and technology, and find ways to solve issues concerning monitoring people without their knowledge. When choosing the skills and artifacts, I wanted to highlight what I considered to incorporate a variety of disciplines that will be integral for my professional development in my future employment.

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