Reflection Essay: My Thoughts on IDS-493 and My Degree Learning Outcomes

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IDS-493: Electronic Portfolio Project

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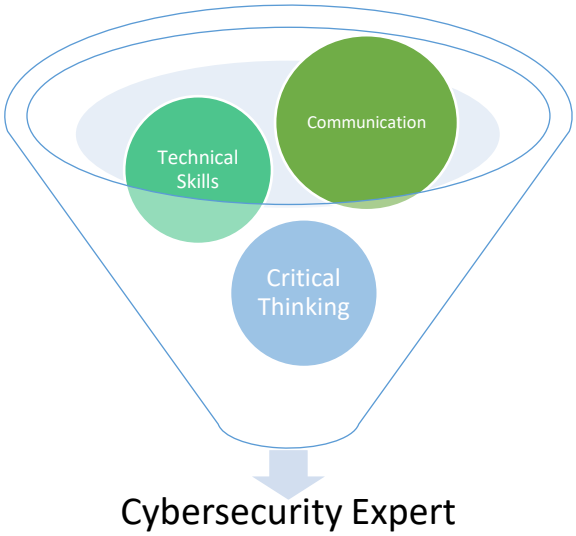
Introduction

An e-portfolio is the perfect way to demonstrate learned skills. It is one thing the say that you have learned a skill, but it is another thing entirely to prove that you do, in fact, possess that skill which you are claiming to have. My e-portfolio is the ideal place where I can prove my skills that I have learned while I have been a student at Old Dominion University (ODU). Ford et al. (2009) expound on the benefits of an e-portfolios as a learning tool in its own right. Not only is it the perfect gallery for skills obtained, but the process of building an e-portfolio can help encourage further reflection and establish deeper connections, providing a richer learning experience than if the e-portfolio had never been developed.

I have found this to be true during my own creation of my e-portfolio. It really helped me evaluate the precise skills I have gained and how my classes and assignments have specifically contributed to these skills, even if at the time they seemed unrelated to my cybersecurity degree. Creating my e-portfolio helped me understand how my classes each contributed to the learning outcomes of my degree. Reynolds and Davis (2014) also express the fundamental need for reflection and self-assessment when developing an e-portfolio. They use the term "metacognition" (p. 7) to describe this analytical process of thinking about your own thinking. They argue that you have to understand they "why" behind your choices. Nguyen (2013) operates under that same belief. "The personal connections that supplemented the reflective practice of the ePortfolio provided a meaningful way for students to learn and understand in new ways" (p. 140).

This essay will explain why I chose each artifact that I featured on my e-portfolio and how it demonstrates the skills I deemed most important to a career in cybersecurity. After scouring job advertisements in the cybersecurity field and much deliberation, I determined that three of the most important skills for being successful in the cybersecurity field are technical skills, communication skills, and critical thinking skills.



Many of my classes contributed to these skills in one way or another, and I chose a variety of artifacts from a variety of classes to demonstrate these skills. I did not want to choose all cybersecurity-focused classes because that would discount the interdisciplinary focus of this cybersecurity degree. Instead, I chose several artifacts from seemingly unrelated classes to demonstrate how all of my classes could be beneficial to my success in my interdisciplinary cybersecurity degree.

Skill: Technical

Technical skills are essential when it comes to a career in cybersecurity. Many other skills can be learned along the way, but to be successful in cybersecurity, you have to have some basic technical skills starting out. All the main learning objectives for cybersecurity majors at ODU involve technical skills. ODU lists these objectives (Old Dominion University, n.d.):

1. Students will be able to manipulate and protect computer systems, networks, and online data from attack and compromise.

2. Students will be able to apply troubleshooting practices and identify potential security lapses.
3. Students will be able to examine and collect forensic evidence for maintenance of network security.

This shows how imperative it is for students graduating in the cybersecurity field to have gained technical expertise. The artifacts I chose reveal how I gained these technical skills through my courses at ODU.

CYSE-250 Basic Cybersecurity Programming and Networking - Python Chat Room Lab

Before learning more advanced cybersecurity techniques, I had to learn the basics of cybersecurity programming and networking. A lot of this class pertained to learning Python programming language. Python can be used to automate tasks, analyze data, and creating cyber threat detection algorithms. I also learned about hardware basics and how to set up different types of networks depending on specific needs. In this lab, I learned how to set up a chat room using Python. I had to carefully set up my server chat room and client chat room, paying attention to every little detail to make sure they would work correctly. I also had to make sure that two sides could connect and speak to each other and that each side of the chat would be able to respond when appropriate. They also needed to be able to exit the chat room when finished. I will use these Python skills I gained to implement safety practices in the future, ensuring I have protected systems.

CYSE-270 Linux System for Cybersecurity - Shell Scripting Assignment

Many IT environments rely on the use of Linux. It is open-source, easily customizable, and supports a wide range of tools to enhance network security. In my Linux class, I learned the basics of how to install and operate Linux locally and in a virtual environment, how to manage permissions and file directories, and how to write shell scripts. I also learned essential security tasks such as footprinting, firewalls, and intrusion detection tools. In this assignment I learned how to write a shell script that could take a specific input and give a specific output using if, elif, and else statements. I also created a script using while statements that would require specific inputs in order to achieve the desired goal of setting a password. These skills are necessary in order to manipulate and protect computer systems and networks.

CYSE-301 Cybersecurity Techniques and Operations - Traffic Tracing and Sniffing Lab

One of the most interesting classes I took at ODU was Cybersecurity Techniques and Operations. During this course, I learned a variety of skills that I am sure to use again during my career in cybersecurity. It included plenty of hands-on applications of concepts and labs to practice and refine our technical skills. Network traffic analysis is a crucial skill for cybersecurity experts. In this lab, I had the opportunity to become proficient with the tool Wireshark to monitor and analyze network traffic which is an important first step for network intrusion detection. This would help me with the collection and analysis of forensic evidence and the identification of potential security lapses.

Skill: Communication

Before I enrolled in courses at ODU, I may have said that the only important part of cybersecurity was the technical skills. While technical skills are important, these hard skills are

not the only skills that matter when it comes to a career in cybersecurity. Soft skills are important too, especially the skill of communication. According to Dawson and Thomson (2018), ignoring the social aspects in the cyber workforce leads to an "incomplete sphere of knowledge" (para. 18). Furthermore, combining social skills with technical skills will result in true excellence in the cybersecurity industry. It can allow for a cybersecurity expert to translate important information to clear language in order to effectively communicate with those who do not have a cybersecurity background. It can also lead to improved teamwork, better client relationships, and an increased compliance which, in turn, can lead to an improvement in completing mission objectives (Elgan, 2023).

Communication can take multiple forms. Written communication is common in scholarly settings, but verbal communication and visual communication are also present. I chose artifacts that would represent all three of these communication types in order to prove that I can do more than just write excellent papers.

SPAN-101F Spanish 101 - Presentation with Audio

During my Spanish 101 course, I learned the very basics of the Spanish language. As I took this over the summer and the course was condensed, I had to learn quickly and study hard. I chose this particular presentation to show my visual and verbal communication skills. The presentation has visual appeal and continuity and originality. Then, I recorded audio so that the viewer could hear that I can speak slowly, clearly, and with confidence even in a language I was just learning. I apply these same concepts to all types of presentations and communications, but it was particularly challenging for me during this presentation since I was just learning Spanish. I did have to re-record the audio several times until I got it just right. Practice makes perfect, whether giving a presentation in a new language or presenting a topic in which you are an expert.

CYSE-201S Cybersecurity as a Social Science - Security Awareness Trainers Paper

One of the first cybersecurity classes I took was cybersecurity as a social science. This was my first introduction to cybersecurity as an interdisciplinary topic, which I really enjoyed. I learned how to view cybersecurity through a social science framework. This entailed how cybersecurity interacts with other parts of society such as politics, crime, the legal system, and economics. I chose to feature this specific paper on my e-portfolio because it demonstrates my ability to communicate through writing in a persuasive style. Hopefully, by the time you are done reading it, you will be convinced that we need more expert security awareness trainers in the cybersecurity field.

CYSE-280 Windows System Management and Security – APTs Final Paper

Written communication can be persuasive, like the artifact above, or more informative in nature. During this course, we learned a lot about Windows system management, however, we were allowed to write our papers on any cybersecurity topic we were interested in. I was interested in learning more about advanced persistent threats (APTs), so I chose that topic for my research paper. I chose this paper to include on my e-portfolio because it demonstrates a different type of written communication than my other example, informative instead of persuasive. I had to do a lot of research and write multiple drafts of this paper until I was finally satisfied with the results. I wanted to make sure everything was clearly presented, easy to understand, and used precise language all while staying informative and presenting the facts as I understood them. I wanted to clearly communicate to the reader what I learned about APTs and how that knowledge could benefit them.

Skill: Critical Thinking

Critical thinking is imperative in cybersecurity because in ensure that professionals can effectively analyze and respond to a rapidly changing environment and threat landscape. You have to be able to put the pieces of a puzzle together without knowing what the final picture actually is. This will be impossible without critical thinking skills. Dawson and Thomson (2018) discuss how mental agility and cognitive flexibility are critical factors to successfully completing a cybersecurity job. Technical skills can always be learned, but critical thinking is much more difficult master. Once integrated into thinking patterns, however, critical thinking and mental agility will allow cybersecurity professionals to create more resilient environments and better counter emerging threats.

CYSE-200T Cybersecurity, Technology, and Society – SCADA Systems Final Paper

Cybersecurity, technology, and society is another class I took early during my studies at ODU. Just like cybersecurity as a social science, it focused on the interdisciplinary aspect of cybersecurity. I learned to examine cybersecurity through global, ethical, cultural, and criminal lenses, to name a few. I chose this paper to include in my e-portfolio because it shows my critical thinking skills. In this paper, I argue that cybersecurity can be used to improve the world. I incorporated ideas of society, technology, and criminology into a paper that also includes technical information. This assimilation of interdisciplinary studies into a single, cohesive paper took the same critical thinking skills that are necessary in the cybersecurity field every day.

HIST-104H Interpreting the American Past – Slave Advertisement Analyzation

One of the general education classes I took while I was at ODU was an American history class. I learned a lot about U.S. history including political, social, religious, and scientific aspects

that led to the development of the United States we know and love today. While this may not seem like it would apply to a career in cybersecurity, it absolutely taught me critical thinking skills. The artifact I chose from this class required me to analyze several slave advertisements from Virginia during the mid-1700s. I had to compare and contrast the slave advertisements, identifying patterns and making assumptions about context based on the limited information provided. I had to learn to read between the lines to squeeze out every drop of information and then think critically about it in order to analyze each advertisement to the best of my abilities. It was an interesting project that is a great example of how I can think critically.

CRJS-406 Cyber Law – Privacy Laws Proposal

During my Cyber Law class at ODU, I learned about various laws related to cybersecurity and the internet. These laws included topics such as freedom of expression, intellectual property, internet regulations, and privacy. We also reviewed what role the government has when it comes to accessing and protection information in the digital environment. I chose this artifact which presents a proposal for privacy laws for a fictional governor in a fictional state. I think it exemplifies my critical thinking skills because I had to propose what laws I thought would work best in this state with the people based on the information provided to me about their thoughts and beliefs.

Conclusion

Technical skills, communication skills, and critical thinking skills are all necessary skills to have in the cybersecurity field. During my time at ODU, I have learned and grown these skills so that I can now confidently say I have them and can use them during my career. Not only can I claim I have these skills, but I can provide proof of these skills using this e-portfolio. All of my

classes, whether they were inherently cybersecurity based or not, contributed to the development of my technical, communication, and/or critical thinking skills. Some classes contributed more than others, but they all played their part in making sure I am ready to enter the cybersecurity profession after graduation. The interdisciplinary nature of the cybersecurity degree at ODU ensured that I can make connections and find patterns where others might be lost. Those skills I can take with me anywhere, into my cybersecurity field or through my life's journey wherever I go.

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