Reflective Assignment: Research Methods and Professional Practice

e-Portfolio link: https://rob-essex.github.io/portfolio/RMPP/

As a working professional with almost twenty years of experience conducting various types of research in a military or corporate environment, I anticipated that this course would primarily refresh and reinforce my current understanding of research methodology. This was true in some units; in others, I was surprised to learn new concepts that will help me better communicate in academic circles. I have used Rolf et al.'s "What? So what? What now?" methodology (2001) to reflect upon the Research Methods and Professional Practice module.

What?

This course provided all the requisite knowledge to successfully conduct, analyse, and communicate reputable research. Appropriately, a lesson in research ethics prefaced the course of instruction and instilled the notion that every phase of research must be conducted with integrity and professional standards, from planning through analysis and report production (Miller et al., 2012; Nulli et al., 2018). In subsequent units, I learned how to leverage research methodologies that I have historically avoided – such as open-ended questions and qualitative analysis – by using the inherent variance in response as a metric (Dawson, 2015) or coding responses into useful categories (Dudovskiy, 2019). This course also taught me how to present my research in an effective, yet captivating, manner.

Lectures and feedback from my tutor, combined with several reading assignments, highlighted the importance of criticality in research. Being honest with yourself, and consequently your audience, produces stronger research by opening the door for other ideas (Dawson, 2015; Willis et al., 2007). Identifying limitations also improves the validity of research by acknowledging where hypotheses may fall short, so fellow researchers can conduct follow-on research (Dawson, 2015).

However, my greatest takeaway from this module is the ability to apply academic conventions to communicate with the scientific community. Explaining a research topic should concisely convey the merit of conducting an experiment to justify the requested resources (Dawson, 2015). Conducting thorough research design, and explaining the rationale behind that design, enables the audience to trust the research instrument (Creswell & Creswell, 2018; Gray, 2014). Using commonly accepted tools during analysis, such as inferential statistics, allows reviewers to quickly assess research findings (Berenson et al., 2015). Ultimately, research should be generalisable, valid, and reliable to earn the trust of the scientific community and general public (Gray, 2014).

So what?

Over the past ten years, I have interacted extensively with research organisations to solve technological problems faced by military service members. Despite having strong communication skills, my concept papers and proposals to academia have continually fallen short whilst they have been greatly successful at corporations and military organisations. I have always felt like an outsider when engaging with the

scientific community, and that researchers did not value my experience and expertise in modern warfare. Over the years, this has led me to avoid interacting with academia and prioritising public-private partnerships, instead. On a personal note, it has been an incredibly frustrating debacle that briefly caused me to question the worth of my hard-earned knowledge. I have always appreciated the advances to society brought by the academic community, but these experiences led me to believe that academics only value ideas that have either been published or come from recognised institutions.

This module has opened my eyes to the possibility that I simply need to communicate with academia in a different manner. By taking more time to establish foundational knowledge from peer-reviewed sources, delineating how preliminary research supports proposed concepts, and using a common lexicon to describe research procedures, I believe I can crack the code on communicating with research organisations. I find that empathy is the best ingredient for effective communication. After this course – and certainly, after my dissertation – I will have a greater degree of empathy for the research community.

Today's big problems need the combined strengths of government, industry, and academia. These partnerships can develop solutions for everything from energy shortages to international security to planetary defence (DARPA, 2021; NASA, 2022). I believe I can now effectively contribute to these joint efforts.

Now what?

Despite my poor, pre-conceived notions that this course would primarily serve as a review, this course has given me new skills for both my academic and professional careers.

Professionally, I am now eager to re-engage research organisations. I look forward to sinking my teeth into a problem statement, assessing the state of the art and existing literature, and building upon that basis in a clear, methodological manner. I will investigate upcoming opportunities from organisations such as the Defense Advanced Research Projects Agency (DARPA, 2023), the National Science Foundation (NSF, 2023), and the Countering Weapons of Mass Destruction Consortium (CWMD Consortium, 2023). I will also review my previous proposals to determine if any of them are worth reworking with my newly acquired research skills.

Academically, I look forward to applying these new skills to my dissertation. I have been conducting preliminary research on three topics to identify and refine possible research questions. This will culminate in a literature review, research proposal, and finally, my dissertation. The research assignments during this course gave me a preview of being able to concentrate on solving a singular problem and becoming an expert in a domain; I am truly excited to do this on a greater scale for my capstone.

Also in the academic realm, I serve as a mentor in a non-profit organisation called the Common Mission Project. which uses programs such as Hacking4Defense (H4D) and Hacking4HomelandSecurity (H4HS) to partner university students and government agencies to solve technological problems (Common Mission Project, n.d.). The knowledge I have obtained in this module has already helped me communicate more effectively with two cohorts. Instead of being a resource focussed on operational tradecraft and the

defence industry, I am now able to recommend research methods, critique presentations, and propose alternative analytical techniques.

The skills I have gained from this course have given me direction to succeed well beyond my graduate degree programme, and also beyond the field of computer science. I now have the foundational knowledge, and confidence, to engage with academic and research organisations I have avoided for several years. This will contribute to my personal, professional, and academic growth for the rest of my life.

References

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