Module Reflections

for

e-Portfolio: https://michaelbotha-repos.github.io/ePortfolio-MSc/#RMPP

Subject: Research Methods and Professional Practice (April 2024)

Assignment: e-Portfolio: Reflections

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Week 1

I am reminded of how important ethics in professional practice is. Additionally, I grow in my awareness of every individual as a gatekeeper of unethical behaviour in their sphere of influence. Moreover, it is important to take responsibility for the fact that society is influenced by interactions with technology I might oversee (BCS, 2022). Therefore, it will be important for me to stay abreast of relevant governance topics in my field and to join a professional body which promotes ethics (BCS, N.D.).

Studying some of the purposes and characteristics of research has helped me form a mental model of research design (Dawson, 2015). Understanding that it is a process with iterative elements will ensure I maintain confidence when facing unknowns.

Week 2

I am challenged by the development of my research question required for the Literature Survey (University of Essex Online, 2024a; Healey et al., 2020). I have a general direction, however, the area of study seems to be saturated. Understanding from the prescribed readings that this is recognised as a difficult phase, I will need to continue making small directional alterations (Dawson, 2015; University of Essex Online, 2024a). Moreover, it would be wise for me to find a specific area to concentrate on (Dawson, 2015). One of my goals in studying the chosen theme is to enhance my future career prospects by benefitting my organisation through the attained knowledge.

Week 3

I have chosen to pivot and change my literature review topic. This experience has shown me the difficulties involved in finding appropriate research topics, and the amount of groundwork required in the early phases of a project. Furthermore, how certain topics on the outset seem feasible but turn out to be otherwise.

Surveys are a powerful tool for research, however, there are caveats like the requirement for a good questionnaire (University of Essex Online, 2024b). I'm more inclined to favour quantitative research but understand that realistically numerical data and mathematical proofs are not always possible (Saunders et al., 2019).

Week 4

My understanding of research design continues to broaden as I note the various purposes, approaches, methods, and strategies involved in projects (Saunders et al., 2019; Dawson, 2015; University of Liverpool Academic Skills, N.D.). Additionally, it is important that I know the goals of my research so that I select the correct techniques (Dawson, 2015).

Through my literature review process I have noted how a broader set of skills may be required during a study (Dawson, 2015). Therefore, one will need to list these and ensure that they are fully prepared to perform the work on hand.

Week 5

Learning about Questionnaire design has highlighted the importance of developing each question to produce specific information (University of Essex Online, 2024c). Moreover, it has been noticed that the continuum from qualitative to quantitative data is related to the type of questioning.

Knowing that qualitative data is tied to an inductive approach, interpretation of such is required to yield meaningful analysis. Therefore, I will need to set guidelines on how to interpret specific data within a dataset, to be able to create trends and themes as outcomes of the overall study.

Week 6

Exploring the characteristics pertaining to quantitative data has revealed important principles like central tendency, variation, and shape (Berenson et al., 2019). I found it interesting how these statistical analysis methods illuminate certain dataset features. These tools will be mandatory to assess variables if I do a deductive quantitative capstone project (Saunders et al., 2019).

The organising of data was noted as an important preparatory task when dealing with numerical data (Berenson et al., 2019). Additionally, being able to see certain aspects of data via different visualisations presents the importance of selecting appropriate graphs, charts, and the like when trying to expressly show findings (Berenson et al., 2019).

Week 7

Probability is a powerful tool useful for applying the trends of acquired data to better predict future outcomes (Berenson et al., 2019). I will need to strengthen my skills in this area to become a better researcher. Additionally, many computer science areas rely on probability and statistics to create algorithms. For instance, Machine Learning which is the topic I am looking at exploring for my capstone project. The need has been highlighted to select an approach for acquiring the necessary skills to be able to perform my final project's research. A few highly recommended books have been located, however, the learning curve would be steep due to the timelines involved. The best approach will be to find a good balance between pragmatism and theory.

Hypothesis testing is a critical technique, helpful for analysing data samples (Berenson et al., 2019). These sorts of approaches will be important to maintain an ethical representation of findings, which I will be responsible for as a professional.

Week 8

An important warning for myself gained through the second discussion and the reading material is that the sound application of statistics rests on certain critical principles (Berenson et al., 2019). For instance, a researcher can import biases into a study if they do not clearly understand the relationship between the required variables or the problem area. Additionally, if I don't apply appropriate data cleaning methods the overall results could be skewed.

Week 9

Engaging with this weeks Lecturecast has revealed the criticality of checking the reliability and validity of my research (University of Essex Online, 2024d). Reliable techniques should be utilised to prevent unrepeatable results (University of Essex Online, 2024d). Additionally, I will need to validate my results by testing them in specific ways (University of Essex Online, 2024d). For instance, trying different inputs in an experiment to ensure certain outputs as a verifiable trend.

Week 10

This week's reading has highlighted the amount of work the report for the capstone project will entail (Dawson, 2015). Therefore, it will be critical that I begin thinking about the layout and requirements thereof as soon as possible (Dawson, 2015). Moreover, it will be important for me to capture all relevant information and data throughout the process to ensure nothing is missing when I start the report (Dawson, 2015).

Week 11

Performing a SWOT analysis reiterated various aspects of my career growth (MindTools, N.D.). I will need to work hard at my weaknesses, however, I understand that realistically this will take time (MindTools, N.D.). Additionally, it is important to maintain one's mental health as burnout can occur when stress is present for extended periods. After considering all aspects, I can confidently say that I am well situated with my current skills and opportunities in the environment I am in. Moreover, with a plan in place to adequately overcome my weaknesses further success is highly probable.

One key area in this regard will be upskilling in analytics and Machine Learning during my capstone project.

Week 12

Reflecting on what I learnt during this module reassures me that sufficient knowledge has been gained to begin my research project. Project management will always be an important task when engaging such a large endeavour. Therefore, I will need to plan well an ensure progress is tracked continuously.

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