ePortFolio web page address: https://nithya8483.github.io/ePortfolio/

Github source url: https://github.com/nithya8483/ePortfolio

1.0 Introduction

As I look back on my journey through this module, I am struck by the profound transformation in my understanding of scientific investigation, research ethics, and the intricacies of research methodologies. The path from Unit 1 to Unit 12 has been a multifaceted exploration of the world of research and professional development, equipping me with knowledge and skills that will undoubtedly shape my future in academia and beyond.

2.0 Activities carried out

During this module, I undertook various self-directed activities to expand my knowledge:

Reading: I engaged in independent reading, delving into the relevant chapters of the core textbooks prescribed for the module (Dawson, 2015; Berenson et al., 2015), along with the reading lists within each unit. These resources formed the foundation of my learning journey.

Lecturecast: I attentively absorbed the content from lecture recordings, which proved invaluable in grasping the key concepts.

Seminars: I actively participated in in-person tutor-led seminars, which played a pivotal role in enhancing my understanding across all aspects of the module. These seminars were particularly beneficial in preparing for the module's summative assessments.

Formative and Summative Activities: I independently undertook all formative and summative activities, continually refining my knowledge and skills based on feedback received from my tutor. This involved extensive personal effort, self-guided research, and ongoing self-assessment. A comprehensive record of my activities in this module can be found in my ePortfolio, with a link provided on page 1.

Collaborative Discussions: I actively engaged in collaborative discussions with my peers, initiating discussions with initial posts, responding to the contributions of my fellow students, summarising these discussions, and incorporating them into my ePortfolio.

These efforts collectively contributed to my comprehensive learning experience throughout the module.

3.0 My Learning Journey

The module's content was organised into units, each focusing on specific aspects of research methods and professional practice. This includes ethical considerations, research methodologies, data collection techniques, statistical analysis, literature review, and project and risk management.

Unit 1: The journey began with an exploration of ethics in computing, where I learned about the ethical considerations associated with computing. I also gained knowledge about inductive and deductive reasoning, which laid the groundwork for critical thinking and analysis. A reflective activity and collaborative discussion on ethics in computing further underscored the importance of ethical research conduct.

Units 2 and 3: In the following units, I delved into the essential elements of research, including formulating research questions, conducting literature reviews,

and developing research proposals. I gained insights into the nuances of exploratory and descriptive research designs and explored quantitative, qualitative, and mixed-method research approaches. Completing peer review activities and analysing a case study on privacy sharpened my critical evaluation skills.

Unit 4: This unit expanded my knowledge by delving into case studies, focus groups, and observations as research methods. I learned about the type of data each method generates and how to collect and analyse it effectively. This knowledge was put into practice when I prepared a literature review outline on "Cloud Computing in Healthcare", receiving positive feedback from my tutor.

Units 5 and 6: These units continued to enrich my research toolbox by focusing on surveys, interviews and questionnaires. I gained an understanding of questionnaire design and critically evaluated the appropriate and inappropriate uses of surveys with respective formative activities. The knowledge of interviews and survey methods deepened my ability to select the most suitable data collection methods for research.

Unit 7: This unit was a pivotal point in my learning journey as I delved into concepts of validity, generalisability, and reliability and their impact on research design. I engaged in a second collaborative discussion about research ethics, emphasising the ethical foundations of research in computing. The completion of the summative assessment for the literature review reinforced my growing proficiency.

Units 8 and 9: These units marked a significant shift in my learning journey as I dived into inferential statistics and data analysis. Here, I defined different levels of quantitative data, measures of location and spread, and the concept of inference and hypothesis testing. I learned various techniques to analyse, interpret, and present qualitative data and gained insights into the advantages and drawbacks of each

method. Understanding the different types of analysis and charting methods broadened my analytical and visualisation skills.

Unit 10: This unit was a culmination of the research journey. I learned the art of research writing and submitted a research proposal presentation. The tutor's feedback I received allowed me to refine my research communication skills (Lilly et al., 2010).

Units 11 and 12: In these units, the focus shifted to professional development and project management, which provided a broader perspective on career growth, emphasising the importance of project management, risk assessment, and change management in research projects. I learned how to develop risk management plans to mitigate risks and uncertainty, and adapt to change while safeguarding project success. Completing a quiz on these topics expanded my knowledge of managing complex projects effectively. I completed a SWOT analysis, skills matrix, and action plan through self-evaluation, aligning my strengths and areas for development.

4.0 Reflection on Statistical Analysis Skills

Before taking this module, I had a basic understanding of statistics, but I can confidently say that my statistical analysis skills have significantly improved. **Understanding Quantitative Data:** I have gained a deep understanding of different levels of quantitative data, which includes nominal, ordinal, interval, and ratio data. This knowledge is crucial for selecting appropriate statistical tests and making meaningful inferences from data.

Measures of Location and Spread: I can now define and calculate measures of location, such as the mean, median, and mode, as well as measures of spread, like

variance and standard deviation. These measures are fundamental in summarising and describing data.

Inferential Statistics: The module introduced me to the concept of inferential statistics and hypothesis testing. I can now identify the different levels of measurement and perform appropriate hypothesis tests to draw conclusions from data.

Statistical Software: I have learned to use statistical software tools like R, Python for data analysis. This hands-on experience has improved my ability to work with real-world data sets and perform statistical tests efficiently.

Data Presentation: I have also developed the skill to present statistical results effectively through various means, including charts, graphs, and tables. This is crucial for communicating findings to both technical and non-technical audiences.

5.0 Impact on Research Methods Process

These enhanced statistical analysis skills have had a significant impact on the overall research methods process I have learned in this module.

Research Design: I now have a deeper understanding of how statistical analysis fits into the research design. This knowledge has allowed me to make informed decisions about the choice of research methods and data collection techniques based on the nature of the data and research questions.

Data Collection and Analysis: I can design data collection methods that align with the research objectives, knowing how the data will be analysed. This ensures that the data collected is suitable for statistical analysis.

Hypothesis Testing: I have learned to formulate clear research hypotheses and select appropriate statistical tests to test these hypotheses. This strengthens the accuracy and validity of the research process.

Data Interpretation: With improved statistical skills, I can interpret research findings more accurately and draw meaningful conclusions from the data. This is essential for making evidence-based decisions.

Data Visualisation: I can create meaningful visualisations to present research findings. This is a critical aspect of effective communication in research, enabling stakeholders to grasp the results quickly.

6.0 Impact on Personal/Professional Experience

The impact of this module on my personal and professional experience is profound. It is reflected in the completed Professional Skills Matrix, SWOT Analysis, and Action Plan.

Professional Skills Matrix: My skills in research methods have been incorporated into the matrix, showcasing proficiency in this area. This strengthens my professional profile and highlights my ability to conduct rigorous research.

SWOT Analysis: The module has addressed the weaknesses in my time management skills. It has provided me with a valuable opportunity to address the limitations and challenges in this area, which is an essential part of the SWOT analysis.

Action Plan: Based on my learning in the module, I have formulated a clear action plan to further develop my statistical analysis and research skills. This includes

continued practice with statistical software, exploring advanced statistical techniques, and applying these skills in my research projects.

7.0 Self Evaluation on Summative activities

To promote my learning skills and continuous improvement, I self evaluated my summative activities based on tutor's feedback (Glasman et al., 2002)

Literature Review: My focus will be to improve my paraphrasing skills and diligently citing sources. Regarding future projects and research, I will continue to refine my approach, by engaging in further skill-building activities.

Research Proposal Presentation: Based on tutor's feedback my focus will be to integrate theory, using research more effectively to strengthen discussion, and to enhance the visual aspect of my presentations.

8.0 Conclusion:

In conclusion, this module has been a transformative journey through the world of research and professional development. From understanding the scientific method and research ethics to mastering various research methodologies, data collection techniques, and data analysis, I now stand as a more informed and capable researcher. These skills and insights will undoubtedly shape my future research and professional practice, ensuring that I contribute meaningfully to my field and society as a whole.

References

Berenson, L., Levine, D. & Szabat, K. (2015) *Basic Business Statistics: Concepts and Application*s. 13th Ed. Pearson

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Lilly, J., Richter, U. M., & Rivera-Macias, B. (2010). Using Feedback to Promote Learning: Student and Tutor Perspectives. *Practitioner research in higher education*, *4*(1), 30-40.