

Final Reflective Piece – Research Methods and Professional Practice

This reflective piece critically examines my learning journey throughout the *Research Methods and Professional Practice* module. The module required engagement with scientific investigation, ethical considerations, qualitative and quantitative research methods, statistical analysis, and reflective professional development through an e-Portfolio. Rather than treating these elements as isolated academic tasks, this reflection analyses how they collectively shaped my understanding of research as a structured, evidence-based, and ethically grounded process. Using Rolfe et al.'s (2001) reflective framework (*What? So What? Now What?*), I focus on three core dimensions: the development of my statistical analysis skills, my understanding of the research process, and the impact of this learning on my personal and professional practice in computing and information systems contexts.

WHAT – Description of the learning experience

Throughout the module, I engaged in a progressive sequence of learning activities that required both technical execution and critical reflection. These included formulating research questions, conducting a structured literature review, selecting and justifying appropriate research methodologies, and applying qualitative and quantitative data collection and analysis techniques. The statistical component involved descriptive and inferential analysis, hypothesis testing, and data visualisation, while the research writing component required clarity, coherence, and academic integrity.

Initially, I approached these tasks with the assumption that research methods and statistics were primarily academic requirements with limited relevance to real-world professional practice. My early focus was therefore on completing tasks correctly rather than critically interrogating the reasoning behind methodological and analytical choices. The requirement to maintain an e-Portfolio challenged this approach by making my learning process explicit and by documenting reflections alongside artefacts, exposing gaps in my understanding, particularly in linking data analysis outputs to meaningful interpretation, validity, and decision-making. Over time, the module shifted my perspective from task completion to reflective engagement with the research process as an integrated whole.

SO WHAT – Critical analysis of learning

Development of statistical analysis skills

The development of my statistical analysis skills represented one of the most challenging yet transformative aspects of the module. Although I had prior exposure to data in a professional setting, my initial engagement with statistical techniques

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revealed limitations in my analytical confidence and interpretive depth. I tended to focus on generating numerical outputs or visualisations without thoroughly interrogating what these results implied or how they could be misinterpreted.

As the module progressed, repeated exposure to data analysis tasks, combined with reflective practice, reshaped my understanding of statistics as a reasoning tool rather than a purely technical activity. I became increasingly aware of how choices related to data representation, sampling, and analysis influence conclusions and perceived credibility. This awareness extended to recognising bias, limitations, and threats to validity. Developing this statistical literacy significantly enhanced my ability to critically assess data-driven claims, an essential competence in computing and information systems where decisions are often justified through quantitative evidence.

Understanding the research process

The literature review and research proposal further deepened my appreciation of research as a systematic and rigorous process. Initially, articulating a straightforward research question and aligning it with an appropriate methodological approach proved more complex than anticipated. I underestimated the level of critical judgment required to evaluate existing literature, justify methodological choices, and ensure coherence between research objectives, data collection, and analysis.

Through iterative refinement and reflection, I developed a more critical stance towards academic sources, moving beyond surface-level summaries to evaluating methodological robustness, ethical considerations, and applicability. This shift marked a transition from descriptive engagement to analytical critique. The structured nature of the research proposal highlighted the importance of planning, risk awareness, and methodological justification, reinforcing the idea that sound research design is as relevant to professional problem-solving as it is to academic inquiry.

Personal and emotional reflection

Emotionally, the module demanded sustained cognitive effort and challenged my confidence, particularly when engaging with unfamiliar statistical and methodological concepts. Periods of uncertainty and self-doubt were common, especially when early attempts did not yield clear or confident interpretations. However, reflective writing within the e-Portfolio enabled me to reframe these difficulties as learning opportunities rather than indicators of failure.

Over time, increased familiarity with the research process led to greater confidence and a more structured approach to problem-solving. This emotional progression was central to my learning, as it reinforced resilience, self-awareness, and the value of reflective practice. Recognising how emotional responses influenced my learning behaviour

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allowed me to adopt more effective strategies for managing complexity and ambiguity, both academically and professionally.

NOW WHAT – Impact on professional practice

The learning outcomes of this module extend well beyond academic assessment and have clear implications for my professional practice. The ability to critically interpret data strengthens my capacity to support evidence-based decision-making in technology-driven environments. Similarly, the structured research approach enhances my ability to evaluate information sources, design investigations, and communicate findings with clarity and credibility.

My reflection on my Professional Skills Matrix and SWOT analysis highlights a shift towards a more analytical and reflective professional identity. I am now more attentive to ethical considerations, data validity, and the limitations inherent in analytical outputs. Moving forward, I intend to integrate reflective practice into my professional routine, using structured reflection to assess decisions, manage risk, and continuously develop my competencies. This module has therefore contributed not only to skill acquisition but also to the adoption of a sustainable approach to lifelong learning and professional growth.

Conclusion

In conclusion, the *Research Methods and Professional Practice* module significantly enhanced my statistical, analytical, and reflective capabilities. By critically engaging with research methods and professional practice, I developed a more rigorous, ethical, and evidence-based approach to learning and decision-making that will continue to inform my academic progression and professional practice.