Assignment 3: e-Portfolio

https://butterworthc.github.io/RMPP/e-Portfolio.html

Word count for e-Portfolio synopses:

Synopses in e-Portfoli	
Unit 1	136
Unit 2	126
Unit 3	125
Unit 4	125
Unit 5	123
Unit 6	134
Unit 7	114
Unit 8	161
Unit 9	132
Unit 10	113
Unit 11	102
Unit 12	73
WORDS	1464

Assignment 3: Reflective Piece [1,004 words]

As described in the University of Essex's own guide on the subject of reflective writing (UoEO, n.d.), there are different ways of structuring the reflective process, some involving a short number of linear steps and some involving iterative cycles. My experience in software development tells me that the linear "waterfall" approach, where there is little feedback between stages, and then usually only between adjacent stages, can be disastrous, especially when timeboxed (Royce, 1970). It assumes that the project stakeholders can produce a perfect specification of the finished product before work has started. When the project is finished and the stakeholders realise that they didn't have a crystal ball after all, it is too late because the team has been disbanded and the whole thing is canned. This is why

iterative processes such as Agile are superior approaches: design weaknesses and weak development can be ironed out by the frequent review of all aspects of a project (Beck et al., 2001). The same applies to the reflective process. I believe the cyclical models will uncover more insights into the work or studies that have been performed. In the context of this module the problem becomes one of scale: is the cycle applied to the whole module or just individual parts of it, such as a formative activity, presented as an "artefact" in the e-Portfolio? The solution seems to consist of a number of iterative cycles within one big cycle, which is what I have attempted.

Two of the models, four-stage and Gibbs (Gibbs, 1988) in UoEO, (n.d.) require a "description" as a starting point, so I think it would be reasonable to define this as "Develop an understanding of a) research methods and b) professional practice. Straight away there is a division into two cycles. Most cycles have analysis and evaluation stages, and some have an action plan.

Within research methods there can be smaller iterative cycles (also with these stages) for understanding types of reasoning, formulating a research question, performing a literature review, selecting a research methodology, developing a research proposal, using statistics, completing worksheets, visualising and presenting results.

Within the professional practice loop there are cycles for developing an ethical outlook to AI, the formulation of my solutions for the case studies on ethics in computing in the age of generative AI, the one on privacy, involving names and addresses, the one on autonomous armed robots, and the inappropriate use of surveys. Aspects of project management fit into either loop.

There is not enough space to trace each iteration but I can give the resulting lessons learned and some insight into how I got there. The overall situation was that I needed to pass this module not only to progress to a MSc project at UoEO, but also to make sure I would be comfortable with the university's way of going about such projects. I already had a MS from an American university, but the tutor was very hands-on, which I appreciated at the time, but which did not expose me to managing my research project unaided. Indeed, I was expert at neither "research methods" nor "professional practice" when the module started, although I had experience of research.

The research methods cycle got off to a solid start, with comparisons of inductive vs deductive logic, as well as qualitative vs quantitative data and their analysis methods. This enabled me to reflect on my MS thesis, which had been on geochemistry, relying on Energy-Dispersive X-ray Spectroscopy to generate data in the form of counts of reflected electrons of different energies. This was quantitative data and I went through my thesis confirming that the appropriate analysis methods had been used. Looking ahead to my next project and assuming it, too, will be quantitative, I appreciated the units covering statistical analysis of this type of data. The techniques presented here built on those introduced in the Numerical Analysis module, and in both modules, I was anxious to make sure I was understanding the statistical significance tests. I discovered that I did not like performing these in spreadsheets as much as in Python notebooks, where all the steps are visible, and there was also the problem of my copy of Excel not having the menu options mentioned by the worksheet instructions, so I was grateful for the LibreOffice instructions. The table of visualisations for different variable types was very handy and I shall refer to it in the future. It was also instructive to go through the PowerBI™ exercises, and I know from the job descriptions I get sent that it is an in-demand skill, so I shall continue to use it.

My time management during this module was good enough to meet the deadlines, although I could have gained more by allocating more time to every activity. I regret not making my initial post to the second collaborative discussion earlier, because most peer responses had already been made and I lost out on those. Next time I will jump in sooner.

The biggest lessons for me were in the areas of project proposals, project planning, and literature reviews. The chapters on these in Dawson (2015) were very thorough and I shall refer back to them during my research project. Also new to me were the ethical codes of the Association of Computing Machinery (ACM, 2018), the American Statistical Association (ASA, 2022) and the British Computer Society (BCS, 2022). As for GDPR, I was working in the United States when this regulation was imposed (European Union, 2016) and had not taken the trouble to familiarise myself with it until now. I am now satisfied that in my future work I can abide by these codes.

This module combined areas I knew about, such as quantitative data and its analysis, with others such as qualitative data. Other things that were new to me, such as PowerBI™ and the focus on ethics, but the pace was rapid, and I believe the most useful reflections on the module have yet to be made, after a period of less forced digestion.

References

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