Reflective Piece

E-Portfolio: [E‑Portfolio – Module Unit Summaries](https://louisdodgeazure.github.io/ResearchMethods_ePortfolio/)

This reflection follows Rolfe et al.'s (2001) reflective framework, structuring my learning journey through three stages: 'What?', 'So what?' and 'Now what?'. This model suits my analytical approach, allowing me to move from reflection through to a concrete plan for future development.

## What?

When I opened the first statistics worksheet in Unit 7, I genuinely had no idea what a t-test was. It's been close to 10 years since I last had to perform any kind of statistical analysis, so I was largely starting from scratch. My approach was embarrassingly basic: I simply followed the worksheet instructions by rote. I got the right answer and moved on, but found I was failing to build genuine understanding. Looking back, I was operating at what Biggs (1999) calls the surface level, focusing on task completion rather than understanding principles.

The literature review presented a different kind of challenge. I qualified for entry via professional experience rather than a bachelor's degree, so I lack prior experience with academic writing. This became painfully apparent while collating sources. I wanted to do things ‘right’, so took a highly structured approach. What I hadn't anticipated was how long it would take to properly evaluate each source. Some papers were barely coherent, yet matched all my criteria on paper. By the time I was done screening, I’d run out of time to synthesize findings cohesively and found myself frustrated that, as a result, few of the sources made it into my final review. Instead, I relied excessively on the handful of sources I'd explored in depth.

By contrast, the research proposal felt more approachable, likely because I've been thinking about this topic for months. For my dissertation, I want to investigate whether graph-based analysis can detect privilege escalation risks before code gets deployed. I saw the research proposal as a trial run. But when I started outlining how I'd validate the tool, I realized I'd been naïve about the complexity. If I use the same tool to detect post-merge attack paths that I'm using pre-merge, I'm validating against myself and I won't know about any paths the tool misses. Additionally, even creating a sufficient test corpus will be a huge amount more work than I initially thought.

## So What:

I remember sitting at my desk after finishing the Unit 7 worksheet, having technically completed everything correctly, but feeling like I'd learned nothing. So I went back. I spent three hours that evening reading about when and why to apply different statistical approaches, properly understanding McNemar's, two vs one tailed t-tests, Chi-squares and so on. It was stressful spending longer than necessary, but statistical skills will be essential for my dissertation. I was consciously shifting from what Biggs (1999) calls surface learning to deep learning: understanding when and why each test applies. When I later needed to compare paired data in my research proposal, I was heartened that McNemar's test immediately came to mind.

The literature search revealed problems I hadn't anticipated. Despite what I thought was a robust methodology, my search strings captured significant noise. By the time I'd narrowed down to my 36 sources for the literature review, I had two days left to write. The time pressure was horrible. I knew what I wanted to say, but there wasn't time to say it well. The first section about cloud governance came out reasonably well because I'd been thinking about those papers longest. But by the time I reached the security controls section, I was basically just listing statistics rather than synthesizing findings.

Despite my time management issues, I was pleased to have produced some original analysis, exploring whether the observed trend of banks accelerating cloud adoption while reducing backout planning reflects governance lag or a conscious acceptance of risk.

Writing the research proposal forced me to think about methodology more rigorously. I'd assumed the hard part would be building the graph analysis tool. But when I started outlining how I'd validate it, I realized establishing and defending ground truth would be the real challenge. The scope of work is probably triple what I initially imagined. I’m relieved that preparing the research proposal flagged up these gaps; my final dissertation will be much stronger as a result.

Refining the methodology for my research proposal forced me to think in specifics - defining precisely what I was measuring, how I would evaluate success, and why each metric mattered. This focus is something I’ve already carried into my professional work. Within the last week, my boss has asked me to lead innovation for my team. When discussing the opportunity with me, he mentioned that a key part of why he’d chosen me was my articulation of concrete benefits when I propose improvements our team could make. The rigour and specificity of my approach is directly attributable to my work during this module.

## Now What:

Looking forward, I'm moving from reflection into what Ericsson, Krampe and Tesch-Römer (1993) call deliberate practice. I've found I don't find learn well from surface-level engagement. Instead, I'm working to set well-defined tasks, and to approach them with effortful focus. What matters isn't finishing quickly, it's building real understanding that I can transfer to new contexts.

My development plan focuses on five key areas identified through this reflection, each structured around deliberate practice principles and measurable outcomes. Table 1 summarizes my skill development priorities as well as specific SMART goals for each area.

**Table 1: Skill Development Matrix**

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| Skill Area | Current Level | Target Level | Practice Method | Success Metric |
| Statistical Analysis | **Aware**: Basic knowledge of inferential tests; can follow procedures but cannot consistently select or justify test choices | **Proficient**: Independently select, justify, and apply statistical tests appropriate to research questions; work with minimal supervision | Take Stanford Statistical Learning course; apply ≥3 techniques to work datasets | Can select and justify appropriate tests unaided 80% of time by June 2026 |
| Literature Review | **Trained**: Can conduct systematic reviews independently but inefficient screening leads to time pressure; struggles under compressed timelines | **Proficient**: Conduct efficient, rigorous literature reviews independently; balance thoroughness with time management under minimal supervision | Monthly 2-hour mini-reviews on SRE topics with refined search strategies (narrow search strings, early quality gates based on venue and methodology); track time allocation | Complete each mini-review within 2 hours with ≥50% of time spent on synthesis rather than screening; identify 4-6 relevant sources per mini-review by February 2026. |
| Research Design | **Aware**: Can identify methodological flaws (e.g., circular validation) but lack knowledge to develop independent solutions | **Proficient**: Design sound research methodologies and validation protocols independently; work with minimal supervision | Work with dissertation supervisor to develop validation protocol; self-study on ground truth establishment in security research | Supervisor review confirms protocol validity; successful pilot on 20+ PRs by July 2026 |
| Academic Writing | **Trained**: Can produce academic writing independently but quality degrades under time pressure; shifts from analytical to descriptive under stress | **Proficient**: Maintain consistent analytical voice and synthesis quality across conditions; work independently with minimal supervision | Write 12 monthly analytical posts (1,000 words) translating module insights to SRE practice; each includes synthesis of multiple sources, analytical framework, and evidence-based recommendations; collect peer feedback | Publish one post monthly throughout 2026 |
| Time Management | **Aware**: Understands  planning concepts but significantly underestimates task duration, particularly for unfamiliar activities | **Trained**: Accurately estimate task duration and work independently under normal conditions; build realistic project timelines | Weekly estimation practice with actual vs. predicted tracking using Pomodoro technique; adjust future estimates based on variance patterns | Achieve 80% estimation accuracy (actual within 20% of predicted) by February 2026 |

For my dissertation, I'm planning differently. The literature review taught me that source evaluation takes far longer than expected. I'll probably spend the first month just on that. The statistics work showed me I need more depth in inferential statistics, so I've already started working through an online course. Not because the module required it, but because I know I'll need it.

I need guidance on literature search refinement. My dissertation will require more efficient filtering to avoid the time sink of reviewing irrelevant papers. I plan to discuss with my supervisor: how to construct search strings that reduce false positives, whether to include quality indicators in initial screening criteria, and how to balance academic and grey literature when academic coverage is sparse.

Looking back, the module taught me that I don't learn well from surface-level engagement. When I hit something I don't understand, I need to stop and dig deeper, even if it means falling behind temporarily.

## References:

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