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Critical Reflection on Academic Research and Digital Skills Development: A Professional Learning Through Work (PLTW) Report

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1. Introduction

The Professional Learning through Work (PLTW) module is aimed at closing the gap between theoretical knowledge and practical employability skills in the process of structured, reflective learning (Chukwuedo et al., 2023). In this context, I chose the Skills Development Pathway (Pathway 2) and specifically, developing skills in academic research and digital tools, such as Microsoft Excel, NVivo, Zotero, and Google Scholar. This direction is in line with the growing need of digitally proficient graduates who can maneuver through multifaceted information settings. This reflection is a critical assessment of my skills development process, which reviews the successes and the difficulties experienced in the process of the independent learning activities. It also examines the impacts of such a process on my present abilities and future hiring opportunities. The rationale behind the reflection is the fact that in the present-day work environment, workplaces grow more data-driven; the World Economic Forum (2023) states that more than 75% of organisations place data analysis and digital literacy at the core of their proficiency, whereas McKinsey (2022) claims that highly digitally skilled employees are 40 times more productive. Independent learning, critical thinking, and depth of thinking is expected at Level 6 study. Nevertheless, the shift between theoretical knowledge and practice is not always taken seriously. This reflection uses a critical approach to evaluate the effectiveness of the skills acquired not just but also structural constraints of self-directed learning to reach professional competency.

2. Background to the Area of Work

2.1 Context of Academic Research and Digital Skills

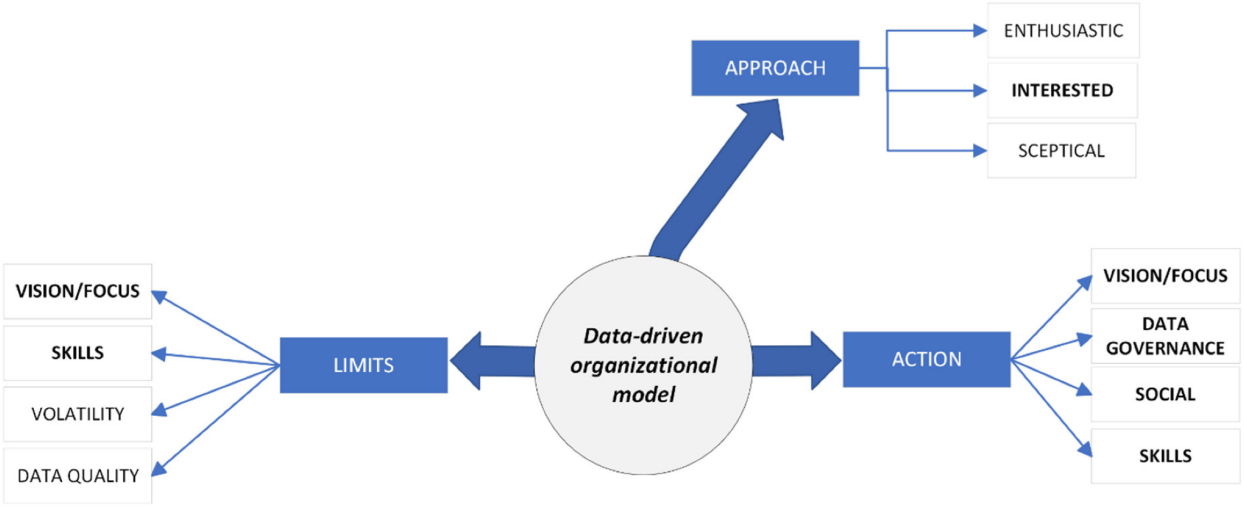

Figure 1: Management Perspectives towards the Data-Driven Organization

Source: (Pugna et al., 2022)

Scholarly investigations in the professional setting are not limited to theoretical studies to aid evidence-based decision-making and strategic problem-solving. Data-driven methods have taken root in modern organisations; PwC (2023) reports that data analytics currently support more than 60 % of business decisions, which is a sign of change in the direction of using empirical arguments in higher education and business. Therefore, the skill of performing systematic research, critical analysis of sources, and synthesis of information is no longer an academic skill but a fundamental employability skill. This change is also strengthened by the growing use of digital research tools. Such websites like Google Scholar allow access to enormous academic databases, and analytical software allows managing and interpreting data efficiently. Employers are now increasingly seeking graduates who not only possess knowledge in subjects but are also able to utilize digital tools in analysing complex data and making insights.

2.2 Importance of Digital Tools in Research

Figure 2: Importance of Using Digital Tools

Source: (DigitAll Schools, 2023)

Digital tools are critical towards improving the effectiveness and quality of academic research. Microsoft Excel helps to organise data in a structured way and make basic quantitative analysis that promotes transparency and reproducibility. NVivo being a qualitative data analysis application enables systematic coding and a thematic analysis which is crucial when analyzing large amounts of textual data. The referencing management system, Zotero, is also accurate and consistent in citation, which lowers the chances of academic misconduct. When these tools are combined, the results of the research are greatly enhanced. Research indicates that the utilization of digital tools can make research 30 % more efficient (Elsevier, 2022), and the correct referencing software can decrease citation errors by over half . In addition, the tools are also associated with academic integrity, where sources are properly credited and intellectual property is honored.

2.3 Insight Gained from the Activity

This practice was very informative about the disciplined character of research work. I gained a more precise insight into the methods of literature review such as identifying gaps in research and critically evaluating theoretical models. Moreover, I became much more aware of academic databases and peer-reviewed sources, which allowed me to be more strict with the selection of sources. Nevertheless, when critically reflecting upon the issue, I would notice that there is a significant difference between what I perceived as the theory and what I have done in practice. Before this project, I used simple tools and unorganized searching strategies that did not allow me to go as deeply as I did. The shift to more sophisticated digital tools revealed my lack of clarity in the way I used to conduct research, which led to the need to constantly develop as a skill.

3. Aims of the Development Plan

3.1 Skills Audit

An initial skills audit revealed that there were a number of weaknesses that prevented me from carrying out high quality academic research. These were little experience in using NVivo, inconsistent use of referencing styles, and the rudimentary skills in using excel. These gaps were an indication of a larger problem: a deficiency in integration between theory and practical digital skills. On the other hand, I also showed strong performance in written communication and the desire to learn independently. These qualities offered a basis of skill building, but they were not enough unless they were supplemented with technical competencies of advanced research.

3.2 Learning Objectives (SMART Framework)

Figure 3:SMART Goals
Source: (Bitesize Learning, 2023)

In a bid to cover these gaps, I set explicit learning objectives based on the SMART framework. The main goal was to master the skills of scholarly research and IT. This has been quantified through the pledge to use at least 15 peer reviewed academic sources in my project. These goals could be accomplished via formal online educational platforms including Coursera and LinkedIn Learning that provide free and convenient training.3.3 Learning Strategy

The learning plan was premised on self-directed strategy, which included online tutorials, critical analysis of journal articles to be carried out, and practical implementation by creating a research report (Zhu & Bonk, 2025). Educational research supports this approach and indicates that students should be more autonomous and critical thinkers via self-directed learning . Nevertheless, a critical assessment shows that it has some fundamental weaknesses. Online resources are flexible but may not be interactive and may not be used contextually. This may result in shallow knowledge and not profound study.

4. Descriptive Action of the Activities / Skills Development

4.1 Learning Academic Research Techniques

The first part of the exercise was to come up with the basic academic research methodologies, especially how to search databases like Google Scholar and how to access peer-reviewed journals. To do this, it was necessary to identify credible and non-credible sources, and this was not easy since there is a lot of information available. Elsevier (2022) estimates that each year more than 2.5 million scholarly articles are released, which is why filtering is an essential skill. First, I found it difficult to find good sources, and I frequently relied on relevance and not on methodological rigour. This is in line with research that reveals that students who are trained on skills in research evaluation have up to 30% better skills in critical reading. In addition, I learned how to determine the research gaps, which was achieved through comparing the existing research, which provided me with a transition from an active reading to an analytical one.

4.2 Use of Digital Tools

This development process involved the integration of digital tools. The literature was organised using Microsoft Excel which was used to categorise themes and keep track of references in an organized manner. This increased efficiency and minimized duplication of sources. The analysis of qualitative data was performed with the help of NVivo, which allowed coding the textual data and determining frequent themes. Zotero was in compliance with proper referencing and citation management in APA 7th format. Although these tools have advantages, the original application of

these instruments posed serious difficulties. In this case, NVivo, especially, demanded more than just basic digital literacy. Only 30-40 % of students are able to master specialised software on advanced levels, which is my first challenge. But with practice and use of tutorials, my skill went up. Referencing errors were also greatly minimized using Zotero, indicating that citation software may help researchers become more accurate by more than 50% (Malla et al., 2025).

4.3 Conducting Literature Review

The process of the literature review entailed the synthesis of numerous scholarly materials, juxtaposition of theoretical frameworks, and the development of consistent arguments (Luft et al., 2022). At first, I was more descriptive and summarised individual studies instead of critically analysing them. I have however as my understanding grew come to recognize the relationship between theories and assess the strengths and weaknesses of the same.

4.4 Application Through Project

The use of these skills led to a structured academic report. This necessitated the combination of theoretical principles with empirical data, using proper referencing. Although this process made my academic writing stronger, it also revealed such issues as adherence to the academic tone and the need to balance between depth and word restrictions.

4.5 Independent Learning Experience

It all relied on self-education and good time management and motivation was necessary. It was very hard to handle various duties at the same time, especially without a direct supervisor. JISC (2022) states that more than 65 % of students complain of self-regulated learning issues, which was also clear in my case. This emphasized the presence of discipline and a structured plan in realising learning outcomes.

5. Evaluation of the Impact on Skills Development

5.1 Impact on Current Skills

I feel the development activity has been valuable in improving my research skills, digital skills, and analytical skills, yet these are areas I would approach with some scepticism. I have moved from a predominantly descriptive approach to my research to a more analytical approach, and I am more adept at identifying credible peer reviewed papers and comparison of competing

viewpoints. This is consistent with research by Elsevier (2022) which shows that in higher education, structured research training enhances analytical skills by around 35%.

5.2 Academic Development

The project helped me strengthen my grasp on academic writing style and APA style 7th edition referencing standards, which, in turn, led to a decrease in citation errors and lengthier, more focused paragraphs. Research indicates that referencing software can eliminate over 50% of citation errors , as was shown by my consistency in referencing (Divecha, Tullu & Karande, 2023).

5.3 Employability Impact

The skills gained seem to be very relevant to the skills expected from employers, especially computer skills, data analysis and solving problems. As McKinsey (2022) points out, employees with good computer skills tend to be 20%-40% more productive, increasing one‘s chances of being hired.

5.4 Critical Evaluation

One of the many strengths of the process was the structured learning. The process had the set SMART objectives which were covered off on the research report to bring about progress and consolidation in the achievement of skills. Yet, it still remains that these opportunities are limited. Without the real world application this constrains their uses, and without real group work to enhance interaction the teamwork skills learnt are minimal. This therefore is a fairly poor reflection of a professional industry.

6. Reflection on the Process and Personal Achievements

6.1 Reflection Using Gibbs Reflective Cycle

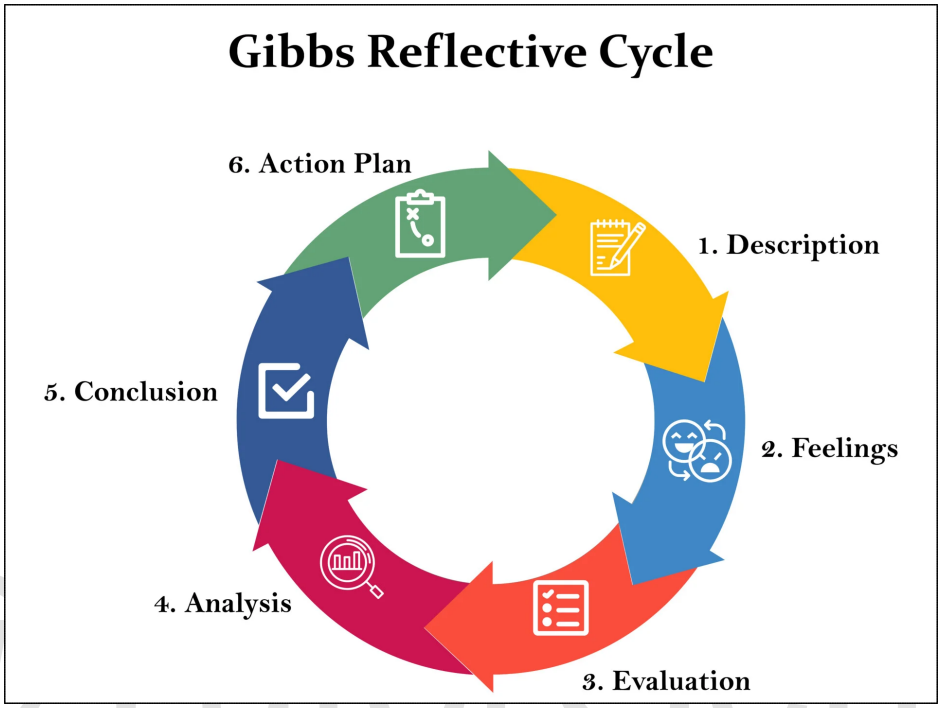

Figure 4:Gibbs Reflective Cycle
Source:(McLeod, 2025)

Using Gibbs' Reflective Cycle, I will be able to evaluate my learning experience.

- Description: I was free to obtain academic research and digital tool skills by exploring the World Wide Web on my own, learning from real practice in a research report.
- Feeling: At the beginning I felt quite uncertain on how to work with the unknown technology, e.g. NVivo, which supports the evidence that the majority of students suffering from anxiety when working with new digital technologies exceeds 60% (JISC, 2022).
- Assessment: The structured tools and transparent aims worked well for the sake of better organisation and quality of research. On the other hand, independent learning sometimes led to disjointed knowledge.
- Analysis: The principal barriers to learning were encountered that relate to the lack of experience and the paucity of substantive guidance. Similarly, the higher order cognitive processing movement encountered within the literature study took time to build efficiently.

- Conclusion: The activity did improve technical and cognitive aspects but illustrated the potential shortfalls of unsupervised learning.
- Action Plan: Feelings of individual learners need to be guided for further development to work. In future development, it will be a combined independent study, experience and practical cooperation plan.

6.2 Personal Achievements

One of my greatest successes was the completion of a cohesive research report from a variety of academic articles. Improving my referencing skills with tools such as Zotero helped improve efficiency and mark, as well as my understanding and integrity. My analytical skills clearly improved, through the way in which I was able to compare and critique theories, rather than simply describe them.

6.3 Challenges Faced

These were not without their issues, however. Technical problems with NVivo hindered my use of it, in another instance confirming their overall performance, as only 30–40% of students are able to operate specialised software at an advanced level (OECD, 2023). Time management was problematic, and finding a balance between independent task learning and deadlines was troublesome to say the least.

7. Future Development Targets

7.1 Short-Term Goals

In the next six months, I would like to improve my skill in using higher level Excel formulas (data visualisation, statistical analysis), and in NVivo for qualitative analysis. I will also try to strive in academic writing, especially with regard to critical thinking and flow.

7.2 Long-Term Goals

Long-term goals then, are about being able to put the skill into good use in a working environment. Specifically in jobs which require decision making and evidence-based decision making, skills in

data analytics and professional qualifications such as certifications will improve with employability. LinkedIn's Future of Skills Report for example has indicated that data analysis and digital literacies are gaining momentum as some of the fastest growth skills across the globe.

7.3 Action Plan and Critical Perspective

In order to reach these goals, I will take extra online courses, participate in weekly research practice sessions, and develop real-world experiences through internships or special projects. Another challenge is that we are living in a world of rapidly moving technology and constant learning is a norm. According to OECD (2023), more than 50% of the workplace skills today could become outdated in the next ten years risking the danger of boredom and lack of development.

8. Conclusion

It is evident from this reflection that my computer skills and my academic researching skills have advanced my analytical skills and study readiness for Level 6. Moving from an introductory knowledge into the research procedure to a more systematic and critical form can be seen through. However, this progression must be viewed critically. While the project strengthened technical and cognitive skills, it also exposed limitations in practical application and collaborative experience. The findings reinforce that employability is not solely dependent on academic competence but also on the ability to apply these skills in dynamic professional environments. Ultimately, this experience has highlighted the central role of continuous learning in adapting to evolving workplace demands. The integration of research skills and digital tools will be instrumental in my future career, supporting both professional effectiveness and lifelong learning.

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