

Paper Title:

The roles of reflective journal writing in enabling blended-learning participants to identify and develop relevant skills: the case of a supply chain program.

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Paper Summary:

The research explored the process and outcomes of participants' reflective journal writing as an element of an online learning skills portfolio, developed as part of a blended-learning supply chain management certificate program. Skills considered, reflecting both professional supply chain competences and program learning outcomes, include project management, leadership, teamwork, interpersonal skills, sustainable practice knowledge, critical thinking and reflective skills, communication, and cognitive skills. Data was analysed from the reflective journals with initial findings, indicating the value of reflective writing in highlighting a) individual participant skill development through program engagement and reflective work practice, b) increasing participant awareness of key supply chain management skills and c) areas of both program effectiveness and future improvement. These research outcomes emphasise the need for incorporating reflective writing journals in supply chain program curriculum design in blended learning contexts.

Note: This is a developmental paper, reflecting ongoing research, which will be presented (if accepted) in-person at the conference.

Proposed Track(s):

1. Knowledge and Learning Track
2. Operations, Logistics and Supply Chain Management

Word Count: 1968

1. Introduction.

This research relates to a Certificate in Supply chain program (henceforth known as program), delivered over the 2019/2020 academic year. The part-time program was (and is) delivered over three semesters, in a blended/hybrid fashion,. The 2019/20 iteration had an initial intake of 28 participants, with 23 completing the program, reflecting the concurrent impact of the Covid pandemic.

The reflective writing and online skills portfolio was embedded within a single assessed 6 ECTS module, delivered, and supported over the duration of the entire program. As part of the overall portfolio, weighted at 80% of the module grade, participants submitted a 1500 word maximum reflective writing journal at the end of the program, with other deliverables, collectively as a learning portfolio. To assist in creating the journal, participants were scaffolded with multiple synchronous and asynchronous resources both at program initiation and at various intervals. For the remaining 20% of module assessment, participants completed a series of reflective blogs at intervals, with a view to capturing learning and reflection observations, to inform learning journal content.

2. Reflective writing and deriving a competency skills framework.

Using reflective writing has been shown to enhance an individuals' awareness of and engagement with their own learning; as a formal output of program participation (Kennison, 2006), a component of a wider learning portfolio (Scott, 2010) or informally, in professional practice (Schon, 1991). Multiple disparate models, paradigms and cycles of reflective writing have been explicated (i.e., Gibbs, 1988; Kolb, 1984). These models vary in emphasis and steps, but have been utilised in multiple disciplines, to help students and practitioners anchor, sequence and structure their learning reflections (Vince, 1998) and engage actively with their practices (Boud, 2001; Paterson and Chapman, 2013). With respect to structuring the reflective journal submission, students were encouraged to utilise the 6 step Gibbs Reflective cycle (Gibbs, 1988), due to what was felt to be a more accessible structured sequential approach.

Reflective writing and associated paradigms can also enable individuals to effectively identify skills relevant to academic (Ramlal and Augustin, 2020) and/or practice contexts (McCarthy, 2011), and also if and how these skills are changing over time (Gipe and Richards, 1992; Cathro, O'Kane and Gilbertson, 2017). To capture and bound relevant skills or competences, different frameworks, are available, often specific to a domain, i.e., Cameron and Whetten's management skills inventory (1984). In this research, the Dreyfus and Dreyfus model (1980) is utilised as the basis of a competency skills framework (tabulated in the appendix) for program participants to identify and reflect on salient skills, thus acting as a framework for reflective learning content. Although there are long-standing debates about the model, including whether it can capture skills acquisition in certain contexts (i.e., Peña, 2010), and an over-emphases on the importance of intuition in learning (i.e., Kinchin and Cabot, 2010), the model has been shown in multiple studies to offer a valid longitudinal frame for experiential learning (Benner, 2004) and critically, given the scope and focus of this program in the supply chain domain, reflects skills and competence development most aligned to the ASCM Supply Chain Manager Competency Model (APICS¹, 2016).

¹ APICS is now known as ASCM (Association for Supply Chain Management)

3. Research gaps and objectives.

Reflective writing and practice often utilised as an assessment tool (Trauth-Nare and Buck, 2011), has been considered to emphasise more past and current cross-sectional reflection rather than the impact of current learning on future goals, objectives, and targeted skill changes (Wilson, 2008). Therefore, the initial research gap and objective to be addressed is to explore participants' perceptions of skills development over an entire program, with a view to informing ongoing *and future* practice. Secondly, developing academic and/or learning and development programs that enable inculcation of relevant, topical, and sufficiently high levels of supply chain competences and skills, needed to manage unpredictable external shocks, is a significant institutional challenge (Gámez-Pérez, et al. 2020). Thus, a second research objective that arises is to analyse participants' skills development reflections within the reflective learning journals, to assess whether the content provided within the certificate program is relevant and effective.

4. Brief overview of data collection strategy and process.

To this point, the data collection strategy has entailed a primary approach of questionnaires and secondary gathering of participants' submitted learning journals. For the completed program iteration, questionnaires were circulated to students in three phases; pre-program, at the mid-point and at program end. The first two questionnaires were circulated as handouts during on-campus sessions with the final questionnaire circulated electronically as on-campus sessions were no longer possible due to the Covid pandemic.

It should be noted that program participants were introduced to reflective writing and the purpose of the research in a pre-program workshop, before completing the first pre-program questionnaire. The different questionnaire response rates are tabulated in the appendix.

In addition to the pandemic impact on questionnaire response rates, many participants worked full-time, so the first two on-campus sessions did not always have the full complement of 28, which is also reflected in the falling response rates. 23 participants submitted a reflective learning journal as part of the overall final learning portfolio.

5. Selection of Interim findings from analyses in progress.

A selection of interim findings emerging from ongoing thematic analyses of learning journals, addressing the two key research objectives, can now be briefly discussed, noting that ongoing analyses of questionnaire responses has not been incorporated at this point.

5.1. Participants' perceptions of their own skills' development and increased awareness of key SCM skills.

Although there was variation in participant engagement with the reflective process and the application of Gibb's (1988) six steps, certain relevant key themes have initially emerged, synonymous with the competency skills framework utilised.

Participants noted that their overall systemic understanding of both the components and interdependence of supply chains had increased (*"I started to visualise where I could use these new processes and techniques in my workplace to create a more efficient production system".*) They had also begun to question their own understanding of their organisation's SC approaches and obtained a richer strategic view of SC (*"I now contemplate advantages of certain decisions or strategies in different environments and ask the question why more frequently, while looking at the overall picture before deciding on the course of action."*)

Program participant diversity in both experience levels and backgrounds, compelled the less experienced to navigate an often-uncomfortable group dynamic; however, this proved invaluable in the working environment, when they needed to create networks to complete assignments and projects (*“This involved a serious amount of interaction and communications with the core team members some of which were much more senior than me at our workplace. I now feel that I can engage and interact with people much better than I would have before the course”*). As the program content was deliberately designed to be broad-based, students also had to learn and work outside their zones of comfort, creating these work colleague networks (*“I had to reach out to my co-worker for their inputs”*) incentivised new ways of looking at their role and the wider organisation (*“The course allowed me to review and analysis the company I work in and therefore get involved in aspects of the company which I would have not had access to prior to this.”*).

5.2. Areas of program effectiveness and future improvement.

A program simulation (namely “The Fresh Connection”) was a group exercise, delivered early and in parallel with introductory modules, and intended to give students an introduction to supply chain integration and interdependence, as well as an opportunity to work and learn together and also from the simulation decisions of other groups. Interestingly, students with more work experience, seemed in many cases, to have had a more negative reaction to the exercise. Some students commented on being overwhelmed due to concurrency with other academic content but that it eventually connected (*“I found it a bit overwhelming, partly because of the time limitation and mostly because there were many moving parts that were to be considered to make a decision that impacted growth or failure of the business, but it was a good opportunity to bring my experience to the table.”*). Another interesting observation was a perceived disconnect to concurrent module assignments (*“this felt a little bit of wasted time as that month’s assignment had no input from the fresh connection.”*). The simulation and wider course emphasis on SCM in a manufacturing environment was also alienating for some (*“I feel the course is too focused on the manufacturing side of supply chain”*).

The ongoing program emphasis on self-reflection, was positive though uncomfortable for many. Early opportunities for students to identify their learning styles (i.e., Honey and Mumford, 1986) created important personal understanding of learning (*“I am now questioning how this pragmatic learning style affected my theoretical learning during the course”*) and the use of teaching metaphors seemed particularly effective (*“Just like the example of the learner not knowing anything about the insect I did not have any knowledge of the supply chain role in manufacturing”*).

Another emerging theme was the value of the industry research project (mentioned previously), where students applied course content to a SC problem in their own working environment. The value accrued not so much from practical application of theory, but in driving the student to create and foster new networks to access information (*“this involved a serious amount of interaction and communications with the core team members some of which were much more senior than me at our workplace.”*).

6. Interim Conclusion, current research limitations and proposed next steps.

Interim findings indicate the value of reflective writing in online learning portfolios, for both program participants and designers, in a) isolating individual participants’ identification of skill development through program engagement and reflective work practice, b) increasing participant awareness of key supply chain management skills and c) identifying areas of program effectiveness and future improvement.

Prior empirical limitations such as questionnaire response rate decline and reflective journal submission rates are hoped to be addressed by the return to face-to-face engagement in the current program iteration. From a theoretical perspective, the current skills/competencies framework has been derived from the Dreyfus and Dreyfus learning model (1980). In terms of future data collection, it is intended to continue with survey collections at program intervals, but alternative or additional frameworks may be considered as the questionnaire basis. Additionally, there are multiple other pools of qualitative data in the ongoing iteration of the program that could be utilised, dependent on receiving ethical permission.

Combining and analysing the above data sources with multi-variate analyses of interval survey data, will more rigorously address the current research objectives, broadening and deepening initial findings and conclusion.

Appendix:

Table 1: Competency skills framework utilised in this research derived from the Dreyfus and Dreyfus model (note: those italicised and emboldened are add-ons relevant to the research and program, which students could elaborate on if they so wished).

Teamwork & Collaborative Skills
Communication Skills (Written Reports-Presentations)
E-learning skills
Problem-solving & Analytical Skills
Leadership
Critical thinking
Personal Management Skills
Learning skills
Technical knowledge & competencies
Sustainable practice knowledge
Interpersonal Skills
Personal Skills Competencies
Academic Competencies
<i>E- Portfolio Skills Development</i>
<i>Others?</i>

Table 2: Questionnaire response rates (28 program participants)

Phase	Number of completed surveys	Response Rates
1 (Pre)	24	86%
2 (Mid)	13	46%
3 (Post)	9	32%

Circulated questionnaires.

A. Initial questionnaire (circulated at program start):

Purpose: This pre-course skills assessment is to allow you to assess what your skills are, what skills you would like to learn, and the process for developing these.

Task: Using the competency levels put forward by Dreyfus & Dreyfus (1980), you are asked to reflect and assess the level of skills, and competencies which you possess at the beginning of the Certificate in Management. You are also asked to consider which skills you would like to learn about, improve on, or gain excellence in, with due consideration to the competency frameworks advocated for Supply Chain Management.

These Skills and competencies may include:

Teamwork & Collaborative Skills - Communication Skills (Written Reports-Presentations) - E-learning skills - Problem-solving & Analytical Skills - Leadership - Critical thinking - Personal Management Skills - Learning skills - Technical knowledge & competencies - Sustainable practice knowledge - Interpersonal Skills - Personal Skills Competencies - Academic Competencies - E- Portfolio Skills Development - Others?

Consider the following to assess your own competence level.

- **Novice:** Rule-based behaviour, strongly limited and inflexible
- **Experienced Beginner:** Incorporates aspects of the situation
- **Practitioner:** Acting consciously from long-term goals and plans
- **Knowledgeable practitioner:** Sees the situation as a whole and acts from personal conviction
- **Expert:** Has an intuitive understanding of the situation and zooms in on the central aspects

(Source: Dreyfuss & Dreyfuss 1980)

Skills /Competence Level	Novice	Experienced Beginner	Practitioner	Knowledgeable Practitioner	Expert
Teamwork & Collaborative Skills					
Communication Skills (Written Reports-Presentations)					
E-learning skills					
Problem-solving & Analytical Skills					
Leadership					
Critical thinking					
Personal Management Skills					
Technical knowledge & competencies					
Academic Competencies					
- Interpersonal Skills					

- Sustainable practice knowledge					
Other					

Professional Skills & Development Questionnaire for Supply Chain Management Research

We invite you to take part in a research project which will assess your skills development before, during and after this course. The purpose of this research is to provide vital data and information which will be useful for conceptualising the role of reflection in enhancing awareness of skills development and showcasing the impact of reflection as a learning tool. We hope this will lead to further academic scholarship which will aid the educational experiences for existing and future students.

Purpose & Task: The following questionnaire is used to prompt you to reflect and evaluate your level of competencies as you begin your course in Supply Chain Management. Based on the APICS Framework for Supply Chain Managers, you are asked to tick the box which you consider most reflects your skills/competency level. There is no right or wrong answer to this questionnaire – it is a reflection at a point in time of your own personal assessment of the skills you have prior to the course. This questionnaire will be followed up with a mid and end of course questionnaire which will reflect your progress throughout the course.

Skills /Competence Level (Source: Dreyfuss & Dreyfuss 1980)	Novice	Experienced Beginner	Practitioner Acting	Knowledgeable Practitioner	Expert
Teamwork & Collaborative Skills					
Communication Skills (Written Reports- Presentations)					
E-learning skills					
Problem-solving & Analytical Skills					
Leadership					
Critical thinking					
Personal Management Skills					

Technical knowledge & competencies					
Academic Competencies					
- Interpersonal Skills					
- Sustainable practice knowledge					
Other					

Please note that this survey is confidential. All information used will be anonymous and compliant with ethical standards in XXXXX.

Thank you for taking the time to fill this out.

B. Interim/Mid-Point questionnaire:

Name: _____

Purpose: This mid-course skills assessment is to allow you to assess the learning which has taken place since the beginning of the course and determine what skills you would like to improve on or learn in the coming semester.

Task: Using the competency levels put forward by Dreyfus & Dreyfus (1980), you are asked to reflect and assess the level of skills, and competencies which you possessed at the beginning of the course and the learning which has taken place since. You are also asked to consider which skills you would like to learn about, improve on, or gain excellence in, with due consideration to the competency frameworks advocated for Supply Chain Management.

These Skills and competencies may include:

Teamwork & Collaborative Skills - Communication Skills (Written Reports-Presentations) - E-learning skills - Problem-solving & Analytical Skills - Leadership - Critical thinking - Personal Management Skills - Learning skills - Technical knowledge & competencies - Sustainable practice knowledge - Interpersonal Skills - Personal Skills Competencies - Academic Competencies - E- Portfolio Skills Development - Others?

Consider the following to assess your own competence level.

- **Novice:** Rule-based behaviour, strongly limited and inflexible
- **Experienced Beginner:** Incorporates aspects of the situation
- **Practitioner:** Acting consciously from long-term goals and plans
- **Knowledgeable practitioner:** Sees the situation as a whole and acts from personal conviction
- **Expert:** Has an intuitive understanding of the situation and zooms in on the central aspects

(Source: Dreyfuss & Dreyfuss 1980)

Task:

Using the competency levels put forward by Dreyfus & Dreyfus (1980), you are asked to reflect and assess the level of skills, and competencies which you had at the beginning of the course, and those which you have learned throughout the course.. You are also asked to consider which skills you would like to learn about, improve on, or gain excellence in, with due consideration to the competency frameworks advocated for Supply Chain Management – some of which are outlined above.

Personal (private use only)

C. Program-end questionnaire:

As we are approaching the end of your Supply Chain Management Certificate course your insight is extremely important and I invite you to take part in the third and final part of the research survey. This is in addition to the first and mid-term survey which you have already completed. To ensure this can be completed in the shortest time possible, and we were unable to complete it in person due to Covid, we hope you will assist us in gathering this valuable data. Please note that this survey is confidential and any information used will be anonymous.

Purpose: This post -course skills assessment is to allow you to assess what your skills are following the course, and the role of reflection (blogs, reflective learning journal and skills portfolio) in raising awareness of these skills.

Task: fill out survey

1. Have you ever used reflective writing for assessing your skills level

Yes, No.

2. How helpful were the reflective blogs for increasing self-awareness of your competencies.

Extremely Useful, Not so useful, Somewhat useful.

3. How would you best describe the impact of reflective practice on your learning?

Transformative, (Scale 1-5)

Increased awareness, (Scale 1-5)

New understanding, (Scale 1-5)

Gained critical perspective. (Scale 1-5)

4. Do you think your skills portfolio was useful for capturing your learning?

Yes/No/Other – comment.

5. Would you have gained awareness of your skills and competencies without reflection?

Yes/No/Other – comment.

6. Should reflective writing be incorporated into other professional courses? Yes/No.

7. Please rate the level at which you believe you have achieved in the following Skills/Competencies (Scale)

Teamwork & Collaborative Skills - Communication Skills (Written Reports-Presentations) - E-learning skills - Problem-solving & Analytical Skills - Leadership - Critical thinking - Personal Management Skills - Technical knowledge & competencies - Sustainable practice knowledge - Interpersonal Skills - Academic Competencies - Others?

Skills /Competence Level S(Source: Dreyfuss & Dreyfuss 1980)	Novice Rule-based behaviour, strongly limited and inflexible	Experienced Beginner Incorporates aspects of the situation	Practitioner Acting consciously from long-term goals and plans	Knowledgeable Practitioner Sees the situation as a whole and acts from personal conviction	Expert Has an intuitive understanding of the situation and zooms in on the central aspects
Teamwork & Collaborative Skills					
Communication Skills (Written Reports- Presentations					
E-learning skills					
Problem-solving & Analytical Skills					
Leadership					
Critical thinking					
Personal Management Skills					
Technical knowledge & competencies					
Academic Competencies					
- Interpersonal Skills					
- Sustainable practice knowledge					
Others					

Thank you for your time. If there is anything that is not clear or if you would like more information, please do not hesitate to get in touch with me.

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