



# CASE STUDY

Supporting nursing students' self-directed learning and competency achievements through the Murdoch University, Discipline of Nursing PebblePad Digital Badge Program

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PEBBLEPAD CASE STUDIES

**STORIES OF INNOVATION TOLD BY THOSE CHARTING NEW COURSES IN LEARNING, TEACHING AND ASSESSMENT.**

## THE CONTEXT

As an extension to the PebblePad eportfolio learning program, micro-credentialing was implemented into the Murdoch University (MU) Bachelor of Nursing (BN) course in 2019. Credentialing is a process used to verify that an individual has met certain defined standards, and in the case of Australian nursing education, the relevant standards are the:

1. Registered Nurse Standards for Practice (Nursing and Midwifery Board of Australia [NMBA], 2016)
2. National Safety and Quality Health Service (NSQHS) Standards (Australian Commission on Safety and Quality in Health Care [ACSQHC], 2017)

'Miniaturising' the concept of credentialing was motivated by the need to recognise self-directed learning and competency achievement on a smaller scale (Davies, Randall & West, 2015), and following this concept MU Discipline of Nursing (DoN) has developed a Digital Badge Program. Digital badges are awarded to nursing students as a form of recognition for achieving competence in selected skill sets at each stage and year level of the BN course. The digital badges, containing metadata to help explain the context of the achievements, are awarded via the institutional LMS then uploaded and displayed in the students' PebblePad eportfolios, demonstrating their accomplishment of identified core skills relevant to the NMBA (2016) and NSQHS (2017) standards above.

## THE PROBLEM

Nursing competency includes core abilities that are required for fulfilling a registered nurse role. The competence of new registered nurse graduates at the point of joining the workforce is an important dimension of quality and safety. Nursing students are required to develop the necessary skills, knowledge and attributes and these are gained by repetitive practice (Kiernan, 2018; Kirwa, 2016). Practising clinical skills and developing knowledge promotes self-efficacy and aids students in transitioning the didactic theory content and clinical skills learned in the simulated environment to practical applications in the healthcare setting (Kiernan, 2018). In addition, the NMBA requires that registered nurses in Australia complete a minimum number of continuing professional development (CPD) hours directly relevant to their context of practice.

The MU DoN Digital Badge Program encourages students to independently and autonomously participate in practising the skills and developing knowledge to gain competency in core skills commensurate to students' year and semester level, and it assists students to develop the graduate attributes necessary to meet the NMBA (2016) Standard 3, which relates to maintaining the ongoing capacity to practice. The Practice Records workbook is available to every student as a resource in their PebblePad account.

## DELIVERY

The Practice Records workbook contains an introduction to the MU DoN Digital Badge Program, and instructions on how to record the occasions that nursing skills are practised, and how students can be assessed for competence in each skill when they identify their readiness. The core skills pertinent to each year and semester level of the course were carefully considered and selected by the MU DoN academic team and selection was guided by the work of Crookes and colleagues (2010) who identified 30 skills areas expected in new graduate nurses in Australia. The competency assessment level of each year and semester group was guided by Bondy's (1983) rating scale for evaluation of student clinical performance, and for the purpose of competency assessment in the Digital Badge Program four levels were chosen (Table 1):

Rating Scale	Description
Independent <ul style="list-style-type: none"> <li>• 3<sup>rd</sup> Year, Semester 6</li> </ul>	Refers to being safe & knowledgeable; proficient & coordinated and appropriately confident and timely. Does not require supporting cues.
Supervised <ul style="list-style-type: none"> <li>• 2<sup>nd</sup> Year, Semesters 3 &amp; 4</li> <li>• 3<sup>rd</sup> Year, Semester 5</li> </ul>	Refers to being safe & knowledgeable; efficient & coordinated; displays some confidence and undertakes activities within a reasonably timely manner. Requires occasional supporting cues.
Assisted: <ul style="list-style-type: none"> <li>• 1<sup>st</sup> Year, Semester 1 &amp; 2</li> </ul>	Refers to being safe and knowledgeable most of the time; skilful in parts however is inefficient with some skill areas; takes longer than would be expected to complete the task. Requires frequent verbal and some physical cues.
Not Yet Competent	Refers to concerns about being unsafe and being unable to demonstrate behaviour or articulate intention; lacking in confidence, coordination and efficiency. Continuous verbal and physical cues/interventions necessary.

**Table 1:** Criterion used to classify students' competence

For ease and convenience, and for situations where students do not have access to WiFi connectivity, the process of "signing off" the achievement of competence is undertaken in PebblePocket via the Murdoch University specific app section entitled "Practice Record – Badges" (Figure 1). Once students return to WiFi connectivity, they upload the signed certificate to their Practice Record workbook. Digital badges are currently awarded and collected through the institutional LMS (Moodle®), with the intention of moving to a badging issuer platform when it becomes available.

Students enter the name of the specific skill that is being undertaken and the date.

The skill is assessed using a relevant assessment level (see table 1).

The assessor signs the competency certificate and "locks" it by pressing "save to device". It cannot be altered once it is saved.

10:30

< Practice Record - Badges Send

Core Competency Title

Date Core Competency Completed

Date

Tap to select

Assessment Level

Please enter assessment level commensurate with knowledge and experience of student education level

☐ Independent

☐ Supervised

☐ Assisted

☐ Not Yet Competent

Clinical Nurse Facilitator / Supervisor signature

Sign this

Save to device

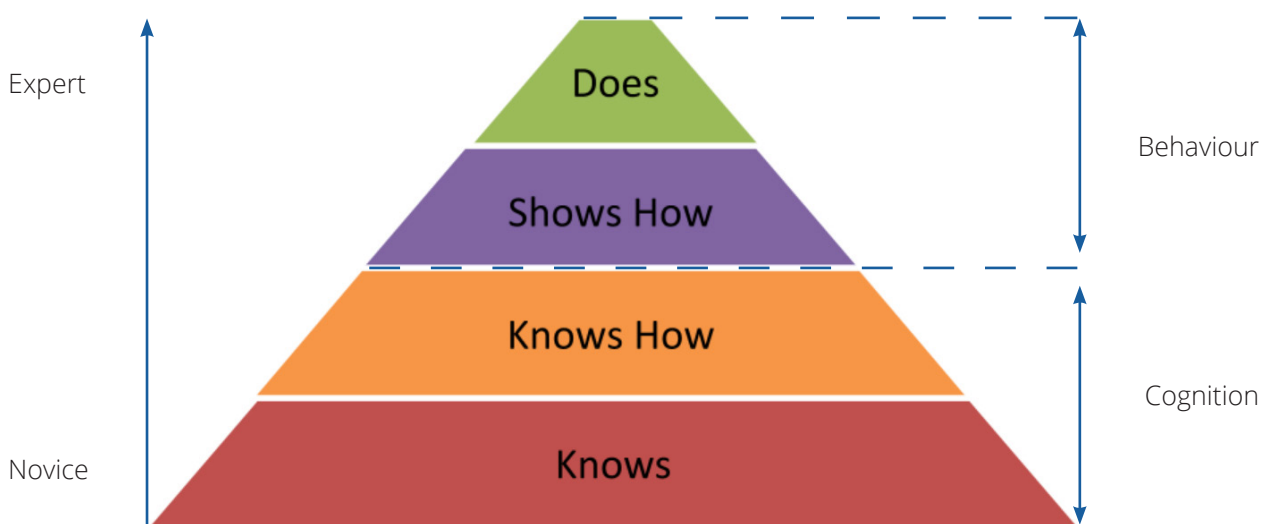
Cancel

**Figure 1.** Skills competency "sign off" in PebblePocket



## THE APPROACH

The Practice Record identifies the core nursing clinical skills that are needed in order to meet the required NMBA (2016) standards and to deliver safe quality care (NSQHS, 2017) commensurate with the students' year and semester level. The Patient Safety Competency Framework (PSCF) for Nursing Students (Levett-Jones et al., 2017) provides a blueprint for students' optimal performance, and underpins the MU DoN Digital Badge Program. The PSCF identifies nine key categories of nursing practice (Appendix A) and provides a knowledge and skills statement for each area, which have been structured with reference to Miller's pyramid of competence that divides the development of clinical competence into four hierarchical processes (Miller, 1990). The hierarchical processes suggest that competence is gained through ongoing knowledge development and repeated clinical skills practise as students move from novice to beginner registered nurse (Figure 2).



**Figure 2.** Miller's Pyramid of Competence.

The BN digital badges have been designed using the nine category icons of the PSCF for Nursing Students (Levett-Jones et al., 2017), and the colours of the PSCF icons were selected using the psychology of colours to evoke a triad relationship between colour, learning and the meaning of each icon (Appendix A) (Babin, 2013; Bosch & Cama, 2012; Clarke & Costall, 2007; Gutierrez, 2016). Each core skill for each year and semester level is mapped against the NMBA (2016) and NSQHS (2017) standards, and the PSCF (2017) to clearly articulate the synergy of each core skill to the guiding principles of safe, quality, competent nursing practice (Examples - Appendix B). Highlighting the synergy of the skill to the standards and framework adds an important component to the deliberate practise of each core skill and develops students' clinical reasoning and critical thinking for safe practice (Ross, 2019).

*"It is difficult to connect what we are learning to do (skills) with all the different standards. There are so many . . . but it has really helped to have all the details of each of them (standards and framework) linked to each of the skills, so that we actually think about each process of the skills; you know . . . "why are we doing it, is this or that normal, what do I need to document" . . . and not just about doing the skill like a robot"*

(2<sup>nd</sup> year student, NUR249, 2019)

Participating in the Practice Records activities is not a compulsory assessment component of the course; however students are actively encouraged to participate in the learning opportunity. Those who do participate stand to gain from demonstrating their commitment to the NMBA (2016) Standard 3 that requires nurses to adopt an independent lifelong approach to continuing professional development, and to actively engage with the profession. Once the theory content and the clinical skills are taught, the students are encouraged to practise the newly learned skills to increase their performance and depth of knowledge pertinent to the skills. Students can date each occasion of skills and knowledge practise in their Practice Record workbook in the "My Practice Record" tab of the workbook, as evidence of their commitment to independent learning (Appendix C). Once students feel confident to demonstrate their competence in the skills they have been practising, they declare their readiness and request that the Clinical Nurse Facilitator (CNF) supervising them on clinical placement assesses them performing the skill (Appendix C). Competence is assessed based on students' provable abilities to connect theoretical knowledge, and critical thinking and clinical reasoning to the demonstrable skill (Tollefson & Hillman, 2019). When students successfully attain competence in a core skill they are awarded the appropriate MU DoN PSCF digital badge (Examples - Appendix D). The digital badge together with the signed and dated competence certificate is then uploaded as evidence to the "My Evidence Record" in the Practice Record workbook and can be used to provide a well-rounded picture of competencies, skills and other important verifiable information to future employers (Appendix C).

*"I think the badges are a great incentive to practise our skills. I actually have something to show my future employer and can prove that I am an independent learner because I have already begun to collect evidence for my CPD"*

(2nd year student, NUR249, 2019)

## LESSONS LEARNT

- Students need to have a clear understanding of the need to develop the necessary characteristics, attributes and abilities for CPD and lifelong learning.
- Students want to know "what is in it for them?" in order to obtain "buy in" of the program. In this instance, it is the reward of confidence building for the development of skills and knowledge competence, and the ability to demonstrate their commitment to their CPD to their future employers.
- Training sessions in the use of the MU DoN Digital Badging Program need to be conducted regularly for students, unit coordinators and tutors, and CNFs, as well as Industry partners.
- A digital badging platform is essential for progressing the program because using the institutional LMS as the platform to award and collect the badges does not allow wide portability. The LMS platform alone limits students to share their earned digital badges with others (e.g. future employers) beyond graduation.
- The badge award schedule needs to be clear and concise so that students know which badge will be awarded for each particular skill to ensure that students attach the correct badge to each skill.
- The development of the MU DoN Digital Badge Program has required an ongoing collaborative and committed team approach among various stakeholders (learners, discipline academics, clinical facilitator, professional staff, institutional and industry partners) to ensure all aspects of the program continue to be successful.

## IN BRIEF

- Rewarding students with digital badges motivates students both externally and internally to engage in their learning. External motivation results because the Digital Badge Program is so comprehensively embedded into the BN course, and the students are able to clearly see it as a critical tool to support their future job seeking, and internal motivation comes from students seeing the relevance of skills and knowledge competence to their future career.
- The Digital Badge Program aligns with the core goal of 'students and education' in the MU Strategic Plan 2017-2027. The program supports students from the first year of study to enhance their understanding of the dynamic and complex global context of nursing in the real world and supports their capabilities to be work ready.

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## APPENDIX A: PATIENT SAFETY COMPETENCY FRAMEWORK (PSCF) CATEGORIES

Safety Competency Categories	Icon / Badge
<p>1. Person-centred care</p> <p>Person-centred care means treating each person as an individual, protecting their dignity, respecting their rights and preferences and developing a therapeutic relationship that is built on mutual trust and empathetic understandings.</p> <p>Purple is the colour of the humanitarian, using their better judgment to do good for others.</p>	
<p>2. Therapeutic communication</p> <p>Therapeutic communication occurs when nurses use verbal and nonverbal communication techniques in a goal-directed way, ensuring that the healthcare needs of the person remain the central focus.</p> <p>Orange is the colour that relates to social communication, stimulating two way conversations. A warm and inviting colour, it is both physically and mentally stimulating, so it gets people thinking and talking.</p>	
<p>3. Cultural competence</p> <p>Cultural competence refers to behaviours and attitudes that enable systems, organisations, professions, and individuals to work effectively in cross-cultural situations.</p> <p>Green is an emotionally positive colour, giving us the ability to love and nurture ourselves and others unconditionally; a natural peacemaker.</p>	
<p>4. Teamwork and collaborative practice</p> <p>Teamwork and collaborative practice refers to healthcare professionals working together using complementary knowledge and skills to provide patient care based on trust, respect and understanding of each other's expertise.</p> <p>Turquoise is the colour that helps to open the lines of communication and helps with clear thinking and decision making.</p>	
<p>5. Clinical reasoning</p> <p>Clinical reasoning is a cyclical process by which nurses collect cues, interpret the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes and reflect on and learn from the process.</p> <p>Yellow is the colour that relates to acquired knowledge. It is the colour which resonates with the left or logic side of the brain stimulating our mental faculties and creating mental agility and perception.</p>	
<p>6. Evidenced-based practice</p> <p>Evidence based practice is the conscientious and explicit use of contemporary research, current evidence, clinical expertise and patient values to make decisions about patient care.</p> <p>Blue is the colour of trust, responsibility, honesty and loyalty and its wisdom comes from "speaking the truth".</p>	

Safety Competency Categories	Icon / Badge
<p>7. Prevent and responding to adverse events</p> <p>Preventing and minimising adverse events refers to the ability to anticipate and to effectively manage human and system factors that have the potential to impact patient safety.</p> <p>Black and White</p> <p>Black is a colour that gives protection from external stress. Black absorbs negative energy and radiates authority, and implies authority and discipline.</p> <p>White is a colour of protection and encouragement, offering a sense of peace and calm, comfort and hope. It creates a sense of order and efficiency.</p>	
<p>8. Infection prevention and control</p> <p>Refers to the use of effective, evidence-based strategies to prevent and manage health-care associated infections. It also focuses on minimising the risk of transmission by effectively using standards and transmission-based precautions and reducing the development of resistant organisms.</p> <p>Red is energizing and it motivates us to take action. It signifies a pioneering spirit and leadership qualities, promoting ambition and determination. Red is used in the colour-coding system (Australia, UK and USA) for cleaning and cleaning chemicals to prevent hospital infection: bathrooms, washroom, showers, toilets, basins and bathroom floors.</p>	
<p>9. Medication safety</p> <p>Refers to the use of medicines to achieve therapeutic outcomes and improve people's quality of life, while minimising risk and responding to errors. Medication safety is dependent upon the nurses' ability to manage the human and systems factors that have the potential to adversely impact the accuracy of medication on prescribing, dispensing and administration, and to educate patients to self-manage medications appropriately.</p> <p>Brown is a serious colour and signifies stability. Brown relates to protection with a keen sense of duty and responsibility, and brown implies taking its obligations seriously. It encourages a strong sense for security.</p>	

## APPENDIX B: CORE SKILLS MAPPED TO THE NMBA (2016) AND NSQHS (2017) STANDARDS, AND THE PSCF

Examples for the core skills mapping across the years:

Communication (1<sup>st</sup> Year Level):

	Standards and Categories
NMBA (2016) Registered Nurse Standards for Practice	Standard 1, Elements 1.2 & 1.3; Standard 2, Elements 2.1-2.5, 2.7 & 2.8; Standard 3, Elements 3.2, 3.4-3.6; Standard 4, Element 4.3; Standard 5, Elements 5.2 & 5.3; Standard 6, Elements 6.1, 6.2, 6.5 & 6.6; and Standard 7, Element 7.3.
NSQHS (2017) Standards	2 - Partnering with Consumers; 5 - Comprehensive Care; and 6 - Communicating for Safety.
PSCF for Nursing Students (2017)	1 - Person-centered Care; 2 - Therapeutic Communication; 3 - Cultural Competence (where relevant); and 5 - Clinical Reasoning.

Medication Calculations and Administration (2<sup>nd</sup> Year Level):

	Standards and Categories
NMBA (2016) Registered Nurse Standards for Practice	Standard 1, Elements 1.4 & 4.6; Standard 2, Elements 2.3-2.5, 2.7-2.9; Standard 3, Elements 3.1-3.7; Standard 4, Element 4.3; Standard 5, Elements 5.2-5.5; Standard 6, Elements 6.1, 6.2, 6.5 & 6.6; and Standard 7, Element 7.1 & 7.3.
NSQHS (2017) Standards	1 - Clinical Governance; 2 - Partnering with Consumers; 4 - Medication Safety; 5 - Comprehensive Care; 6 - Communicating for Safety; and 7 - Blood Management.
PSCF for Nursing Students (2017)	1 - Person-centred Care; 2 - Therapeutic Communication; 4 - Teamwork and Collaborative Practice; 5 - Clinical Reasoning; 6 - Evidenced-based Practice; 7 - Preventing, Minimising and Responding to Adverse Events; 8 - Infection Prevention and Control (where relevant); and 9 - Medication Safety (where relevant).

Vital Signs (2<sup>nd</sup> and 3<sup>rd</sup> Year Level):

	Standards and Categories
NMBA (2016) Registered Nurse Standards for Practice	Standard 1, Elements 1.1, 1.4, 1.5 & 1.6; Standard 2, Element 2.7 & 2.8; Standard 3, Element 3.1, 3.2, 3.6 & 3.7; Standard 4, Elements 4.1-4.4; Standard 5, Elements 5.1-5.4; Standard 6, Elements 6.1, 6.2, 6.5 & 6.6; and Standard 7, Element 7.1-7.3.
NSQHS (2017) Standards	1 - Clinical Governance; 2 - Partnering with Consumers; 5 - Comprehensive Care; 6 - Communicating for Safety; and 8 - Recognising and responding to Acute Deterioration (where relevant).
PSCF for Nursing Students (2017)	1 - Person-centred Care; 2 - Therapeutic Communication; 4 - Teamwork and Collaborative Practice; 5 - Clinical Reasoning; 6 - Evidence-based Practice; and 7 - Preventing, Minimising and Responding to Adverse Events (where relevant).

## APPENDIX C: PRACTICE RECORD WORKBOOK

“My Practice Record”

The screenshot displays the PebblePad interface for the 'My Practice Record' workbook. The top navigation bar includes icons for a menu, PebblePad logo, a plus icon, a blue circular icon, and a save icon. Below this, a 'Save' button and a 'Try this workbook' link are visible. The main content area features a 'Contents' sidebar on the left with a 'My practice records' dropdown menu. This menu is open, showing a list of items: 'Core Skills Y1 S1', 'Core Skills Y1 S2', 'Core Skills Y2 S1', 'Core Skills Y2 S2', and 'Core Skills Y3 S1/2'. A blue button labeled 'Add a new item' is at the bottom of the list. A blue arrow points from the text 'Students practise the core skills identified as pertinent to the specific year and semester group.' to the 'Add a new item' button. The main workspace shows a form with a 'Please enter a label' prompt and a 'Semester 1 (enter month)' dropdown. A 'Help' button is in the top right corner.

Save Try this workbook

Contents

My practice records

- Core Skills Y1 S1
- Core Skills Y1 S2
- Core Skills Y2 S1
- Core Skills Y2 S2
- Core Skills Y3 S1/2
- Add a new item

Year 1 (enter year)

Semester 1 (enter month)

Please enter a label

Help

Students practise the core skills identified as pertinent to the specific year and semester group.



The screenshot shows the PebblePad interface. At the top, there is a navigation bar with icons for a menu, PebblePad logo, a blue circle, a green plus sign, and a document icon. Below this, a toolbar contains 'Save', 'Try this workbook', '+ ADD CONTENT', and '< Properties'. The main content area is titled 'Contents' and lists three items: 'About Clinical Activiti...' (with a 'Web' icon and a dropdown arrow), 'My practice records' (with a 'Web' icon and a dropdown arrow), and 'My evidence records' (with a 'Web' icon and a dropdown arrow). Below the list, there is a table with a header row containing 'Date' (with a gear icon and a calendar icon) and several empty cells. A blue arrow points to the 'Date' header. The table is labeled '{Communication} Therapeutic Communication'.

Students keep a record of the number of times they practise the skills by entering the date for each occasion. This can be used as evidence and justification for the readiness to be assessed for competence.

Once students feel confident in a skill, they declare their readiness to demonstrate their competence and write a brief justification of what they have done to develop their skills and knowledge.

## APPENDIX D: PSCF BADGES AND CLINICAL ACTIVITIES AND NURSING SKILLS

The badges are awarded to the students according to the year and or semester level in which they achieve the core skills. Once the student has been deemed competent for each element of the core skill(s) the appropriate badge for the skill(s) is awarded at the relevant year level.

### Example One

A 1st Year, Semester 2 student is deemed competent for “Communication” whilst on NUR109 clinical placement. The digital badge for this skill at this year level will include the four PSCF icons below:

- Person Centred Care
- Therapeutic Communication
- Cultural Competence
- Clinical Reasoning



### Example Two

A 2nd Year, Semester 2 student is signed off for “Communication” whilst on NUR249 clinical placement. The digital badge for this skill at this year level will include the seven PSCF icons below:

- Person Centred Care
- Therapeutic Communication
- Cultural Competence
- Clinical Reasoning
- Teamwork & Collaborative Practice
- Evidence Based Practice
- Prevent & Respond to Adverse Events





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