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**Providing nurse supervisors with a theoretical framework to support student learning
during placement-based work integrated learning: A survey study**

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Abstract

There is an absence of information about the efficacy of teaching techniques specifically used to prepare nurse supervisors in clinical teaching and supervision of students during placement-based work integrated learning (WIL). For nurse supervisors to gain an understanding of the student perspective, participants undertook continuing professional development interactive simulation activities. This pre-post intervention study aimed to determine whether interactive simulation as an intervention was effective for preparing registered nurses (n=60) to support student learning during WIL. Furthermore, the research assessed whether the clinical reasoning cycle became integrated into nurse supervision practices on return to the workplace. There was a significant increase in post-workshop skill ratings compared to pre-workshop for all 19-item scores. At six-weeks follow-up, four items remained stable. For 15 of the 19 items there was a statistically significant downward shift in the spread of the data. However, median skill/knowledge scores were equivalent for 13 items. The findings showed inclusion of the clinical reasoning cycle using the same pedagogical framework students would experience during interactive simulation, improved nurse supervisor's skills and confidence ratings in the short-term. Further continuing professional development using interactive simulation may advance embedding of the theoretical framework and promote knowledge and skill retention.

I INTRODUCTION

There is an absence of information about the efficacy of teaching techniques specifically used to prepare nurse supervisors for clinical teaching and supervision of student nurses during placement-based work integrated learning (WIL). There is research indicating the need for professional development for nurse supervision and yet no specific clinical teaching model exists for nursing (Bott et al., 2011). WIL is a mandated component of accredited Bachelor of Nursing programmes in Australia. A minimum of 800 hours of professional experience placement must be incorporated in an undergraduate nursing degree (Australian Nursing and Midwifery Accreditation Council, 2019). As a compulsory component of student learning, the Australian Government provides funding to health services for WIL, specifically for supervision of undergraduate students (Bowles et al., 2014). One university reported up to fifty percent of student funds were spent on the clinical education component of the nursing programme (Sedgwick & Harris, 2012). Accreditation requirements, plus the increasing number of nursing students requiring WIL is the main factor contributing to the significant financial obligations (Schwartz, 2019). Placements in regional locations also increase the cost as travel and accommodation fees are covered by the higher educational institution for some regional locations (Schwartz, 2019). Despite the costs an independent review of nursing education by Schwartz (2019) received reports of inadequate supervision of nursing students during WIL.

The importance of the quality of student nurse supervision in healthcare is a key workforce development strategy for retaining and recruiting nursing students beyond graduation. However, the predicted global shortage of nurses, and a shortage of 109 000 registered nurses in Australia by 2025 will create workforce planning challenges (Health Workforce Australia, 2013, 2014). Supporting registered nurses to learn the art and science of student supervision enables opportunities for students to receive effective supervision from approachable supervisors (Nash et al., 2011). Creation of a conducive learning and teaching environment contributes to a sense of belonging by students, which has been found to positively impact the student experience (Levett-Jones et al., 2009; Newton et al., 2015).

Siggins Miller Consultants (2012) and more recently an independent review commissioned by The Commonwealth Department of Health, (Schwartz, 2019) indicated the requirement to improve the quality of the professional experience placement is critical to contemporary healthcare service delivery. The reports (Schwartz, 2019; Siggins, 2012) highlighted an ageing nursing workforce would lead to nurse shortages at a time when a higher proportion of the population will need chronic disease management which will require increased access to healthcare services. These national reviews highlighted that education and training of nurse supervisors needed attention indicating that WIL should be a formalised process that ensures every student has a safe and effective placement (Schwartz, 2019).

The aim of quality practice-based WIL placements is to maximise learning opportunities required for a successful transition to professional practice and work-readiness of students at graduation (Bowles et al., 2014). Health Workforce Australia (2011) stated “high quality” supervision is the “key influence” on the quality of WIL (p. ii). However, there is research that identifies gaps in the capability of nurse supervisors to support student learning during WIL, which has the potential to impact on the quality of WIL and potentially the safety of patients (Berndtsson et al., 2020; Bott et al., 2011; Hall-Lord et al., 2013; Lambert & Glacken, 2005; Landmark et al., 2003; Mather et al., 2015; Schwartz, 2019; Sedgwick & Harris, 2012).

There are a broad range of titles and no standardised definition (Berndtsson et al., 2020; Mather et al., 2015) given to the role of registered nurses who support student learning. These terms include preceptor, clinical facilitator, mentor or coach (Mather et al., 2015). This study adopts the title nurse supervisor as the term describes the role and function of registered nurses responsible for student learning in the clinical setting during WIL (Mather et al., 2015).

II BACKGROUND

Clinical teaching and supervision is a regulated responsibility mandated in the registered nurse standards for practice (Nursing and Midwifery Board of Australia, 2016). Learning and teaching is overtly stated in Standard 3, whereby nurses must maintain the capability for practice and use a lifelong learning approach for continuing professional development of self and others (Nursing and Midwifery Board of Australia, 2016). Higher education and healthcare providers have a joint responsibility in enabling student nurses to participate in clinical placement activities in collaboration with capable registered nurses, to ensure they attain the proficiency required to successfully complete the undergraduate nursing course. Educationally prepared nurse supervisors are critical for active engagement in learning by students (Taylor et al., 2015). Despite the significance of clinical teaching to the role of the registered nurse, Bott and colleagues (2011), reported teaching techniques exist in medical education, however, no discrete teaching capabilities are identified for nursing or for use in nurse supervision (Bott et al., 2011). Browning and Pront (2015) identified this lack of preparation for nurse supervision has been an issue for almost twenty years.

Research is emerging that moves beyond identifying the need for nurse supervisors to receive professional development, to small, single site implementation strategies (Berndtsson et al., 2020). Examples of strategies include Bott and colleagues (2011) providing information about a five-minute preceptor technique adapted from the one-minute preceptor (Neher et al., 1992), and found this strategy to be a promising teaching technique in nursing. Carlson and Bengtsson (2015) reported a structured professional development course including lectures, workshops, case and field studies for preceptors involved in WIL, developed self-confidence and leadership in the supervision role. Browning and Pront (2015) evaluated the effectiveness of a computer-based nurse supervisor educational package and stated it increased confidence and preparedness to supervise. The use of podcasts, which focused on unsafe student practices and how to deal with challenging situations, were developed to support supervisors (Blum et al., 2012). Additionally, an evaluation of the usability of a virtual community of practice targeting nurse supervisors using a blog and microblog was reported to be a supportive professional development strategy (Mather & Cummings, 2014). Workshop design has also been used to increase use of evidence-based practice by supervisors, which in turn supported them to guide students to use evidence-based care (Hagler et al., 2012). Overall, the reported professional development strategies are aimed at building nurse supervision capacity and capability while strengthening nurse supervision practices during WIL. Professional development interventions in these studies evaluate positively in supporting nurse supervisors to feel better prepared and confident to perform the role.

Although there are a variety of interventions aimed at supporting nurse supervision, one professional development strategy that has not been specifically reported is incorporation of simulation-based learning for nurse supervisors. The rationale for utilising this strategy as a learning and teaching tool for nurse supervisors was it enabled them to be immersed in similar situations to students encountering the workplace. The potential for supervisors to gain new insights about being learners in unfamiliar contexts could be transferred into the learning environment at their workplaces. Research describing exposing nurse supervisors to theoretical components of the university degree as a strategy to prepare nurse supervisors for the role of clinical teaching and supporting students to learn during WIL is also scant.

Simulation has been adopted in undergraduate nurse education as an educational approach to prepare student nurses for the complex work of nursing practice. Simulation is used within university curricula to improve attributes of graduate nurses (Cant & Cooper, 2017). Cognitive skills, such as those used for developing clinical reasoning, can be facilitated through simulated learning and teaching opportunities (Kim et al., 2016; Lapkin et al., 2010; Lasater, 2007; Levett-Jones et al., 2010; Oh et al., 2015; Ravert, 2008; Tanner, 2005). To develop the learning and teaching capacity and capability of nurse supervisors, linkage of the educational curriculum regarding clinical reasoning was embedded within simulation activities and related to the WIL

context by development of an interactive simulation. The workshop intervention was developed using the clinical reasoning cycle (Levett-Jones, 2013; Levett-Jones et al., 2010) as a model to support nurse supervisors to engage learners in the workplace. The clinical reasoning cycle was simultaneously introduced into the Bachelor of Nursing curriculum as the preferred critical thinking framework to support students in nursing practice. Interactive simulation was used to demonstrate the way that the clinical reasoning cycle can be utilised to support student learning and their thinking development. Additionally, to augment their understanding of the student experience, participants were exposed to learning and teaching methods currently used within the Bachelor of Nursing curriculum so they could gain insight into the student experience.

III MATERIALS AND METHODS

Clinical reasoning workshops using simulation activities were designed as an intervention to support professional development of registered nurses who undertake nurse supervision. The workshops were aimed at nurse supervisors who were placed in interactive simulation sessions that replicated similar situations to their students, so they could gain understanding about learning at the workplace from the student perspective. The purpose was to show how to guide and encourage nursing students to learn in the clinical setting.

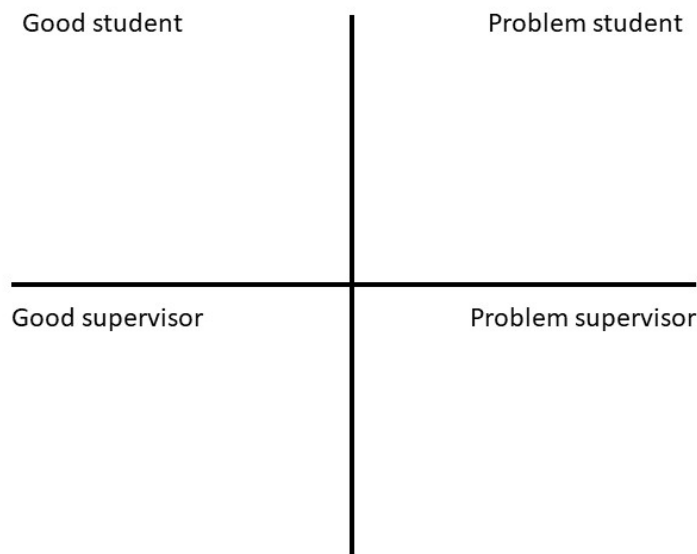
Process and impact evaluation of the workshop intervention was undertaken by conducting paper-based pre- and immediate post-workshop and electronic longer-term post-workshop evaluation surveys. The impact evaluation was to report levels of sustained change in knowledge and skills of the participants that demonstrated their perceived abilities to support student learning after the clinical reasoning cycle was explained and demonstrated. The evaluation survey used Likert scales, and also captured free text responses seeking further information regarding the workshop content and use on return to their workplaces.

A The Intervention

A workshop intervention was developed and comprised of four activities. The interactive simulation is described in detail as: 1) Understanding learning; 2) Understanding thinking; 3) Using the clinical reasoning cycle; and 4) Providing feedback.

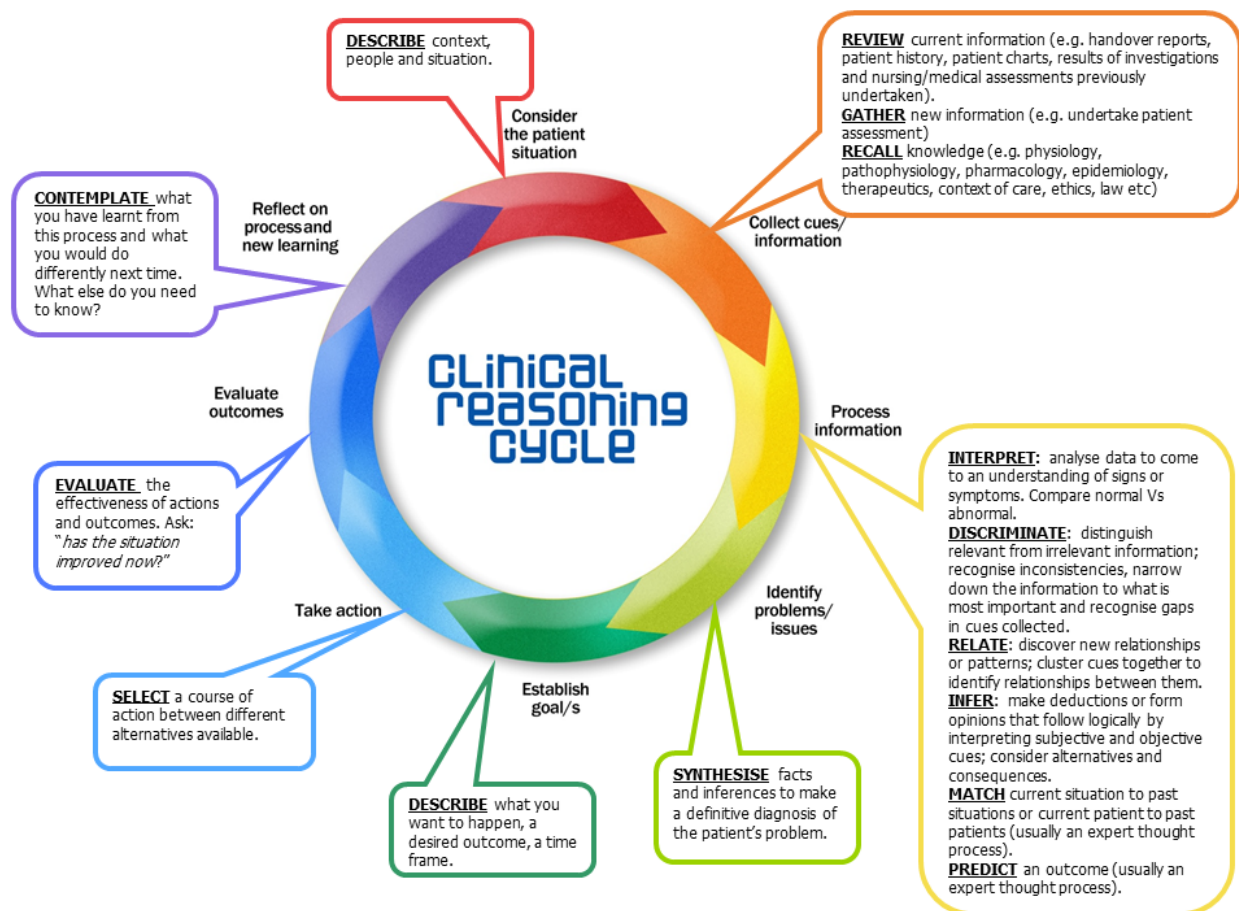
Activity one, titled *Understanding Learning*, uncovered what supervisors knew about student and supervisor behaviour in the workplace. Participants undertook small group work. On 'butchers paper' each group of participants divided the paper into four quadrants (Figure 1). The participants were given 10 minutes to write a list of words that describe behaviour that is good and then the opposite, or problematic behaviours, that could be displayed by students or supervisors in the context of WIL. From this exercise, links were made to the clinical reasoning cycle, discussing the described behaviours as cues that indicate students who are engaged in learning and to those who are not. The link also revealed supervisors who exhibit behaviours that are positive to promote student learning, and to those supervisors whose behaviours present as a poor resource to student learning. This section of the workshop then focused on the 'problem' student and understanding the behaviours based on the theories of motivation and confidence (Harris, 2011).

Figure 1
Activity 1: Understanding learning template



Activity two was titled *Understanding Thinking* which, was based on the 'Zoom Game' (Banyai, 1995) whereby a group try to create a unified story from a set of sequential images. Each person has an image but cannot show it to others. The challenge is for the group to determine the correct sequence through describing their image. Once agreed, they place the images face down on the table without revealing the image to any group member during the activity. This activity requires patience, communication, and effort to understand another's point of view to create the story's sequence. At the end of the activity, the group was allowed several minutes to discuss and reorder the images once they had revealed them. This activity explored how students feel as learners in the workplace and how they need communication and problem-solving skills to put the 'big picture' together. This activity showed the link of students having pieces of the picture but plenty of information missing – meaning they cannot always see the bigger picture, which affects their understanding of what they did and why they did it. To enable students to learn to be critical thinkers, supervisors should encourage behaviour like those exhibited by the group in trying to put the images in order. Students should seek information, validate the data, try to determine the necessary action, and re-evaluate their actions. They should also be encouraged not to base their actions on assumptions. Supervisors were advised to encourage these self-checking behaviours in students and to understand that students need help to put the 'big picture' together. The clinical reasoning cycle (Figure 2) was then used to demonstrate how talking through the reasoning process assists students to see the 'big picture' and is linked to thinking like a nurse (Levett-Jones, 2013).

Figure 2
Clinical Reasoning Cycle (Reproduced with permission. Levett-Jones 2013)



Activity three followed, titled *Using the Clinical Reasoning Cycle* (Levett-Jones, 2013). This activity guided the supervisors through the process of the clinical reasoning cycle while discussing the descriptors of the cycle. The clinical reasoning cycle (Figure 2) was then linked to student learning in the workplace and participants were encouraged to use the process as an evaluation tool for identifying problems with students learning in the workplace. It could also be used for setting goals and as a course of action to resolve impediments to student learning. The clinical reasoning cycle was also demonstrated by the academics conducting the workshop to assess student knowledge, understanding and thinking. The clinical reasoning cycle was then demonstrated through a simulation exercise, to show how it could provide anticipatory guidance to students in the workplace as described below:

The simulation exercise was achieved by placing four of the workshop participants into the high fidelity simulation (Lopreiato, 2016) environment and asking them to undertake a simple task of recording a set of vital signs from a display monitor. The unfamiliarity of the environment highlighted how a newcomer can appear incompetent undertaking a simple task. Using the pause available in simulation activities, the academics conducting the workshop then demonstrated how providing some anticipatory guidance using the clinical reasoning cycle could improve their task performance. Firstly, providing some context and background to the reason the patient required vital signs allowed them to gain an initial impression or an immediate clinical grasp (Levett-Jones et al., 2010; Tanner, 2006). Tanner (2006) pointed out that this concept is important for a novice nurse, as they must learn to recognise situations in which they can apply theoretical knowledge. It was then explained to participants they were seeking normal and abnormal parameters of the vital signs or cues and knowing how to read the monitor. This demonstration of skill showed capacity for processing information. The academic instructor then checked in to ensure they knew

how to record vital signs on the chart provided. Participants were then guided to understand the potential patient problems that were being monitored and what action to take if a problem should arise. This is so they can anticipate possible outcomes and identify problems. The participants then repeated the scenario and what was observed was a calm and confident approach to the task. This second attempt at the scenario demonstrated the power of anticipatory guidance using the clinical reasoning cycle. Following on from this activity the workshop instructors focused on using the clinical reasoning cycle as a debriefing tool.

The clinical reasoning cycle was then demonstrated as a debriefing tool to guide students after a critical incident. This was conducted using a video recording of an unexpected cardiac arrest in a simulated scenario. The clinical reasoning cycle was used to demonstrate how to guide student understanding about what had taken place in the videoed scenario, and to ensure students would learn from an incident that may occur while they are in the clinical setting rather than impartial observers of an incident. A further debriefing activity aimed at developing abilities to be skilfully judgemental and to enhance the skills of giving feedback to students followed.

Providing Feedback was the fourth activity and was based on the debriefing technique developed by Rudolph et al. (2006). This approach was aimed at helping supervisors provide feedback about critical, unsafe or unorthodox observations while still maintaining a trusting relationship with the students. The underlying concept was to disclose their judgements about students' impediments skilfully. This section of the workshop also introduced the supervisors to a feedback template for identifying student's areas of competency known as the 'ASAP model' (Zasadny & Bull, 2015) designed to diagnose practice deficits and implement targeted support. This tied the clinical reasoning cycle and student learning in the workplace to a tangible tool for articulating student progress or impediments while providing the required feedback for the University and to the student.

B The Surveys

The pre-workshop survey comprised three sections, of which the first part sought responses to 22 items regarding participant self-assessment of confidence regarding the knowledge, skills and behaviour of being a nurse supervisor during WIL. There were two free text questions and a question seeking information about support needs (using a Likert scale) in the second part of the survey. The final section focused on demographic information of respondents. Participants assigned themselves a unique code for the pre- and immediate post workshop surveys, which were matched to enable a paired analysis.

Similarly, the hard copy post-workshop and electronic six-week follow-up survey comprised three sections. The first section sought information about confidence levels. The second part focused on knowledge and skills and asked participants to rate their clinical reasoning knowledge and skills on 19 individual five-point Likert scales (1 = 'low knowledge or skills', 3 = 'medium knowledge or skills', 4 = 'medium-high knowledge or skills', 5 = 'high knowledge or skills') as outlined in Tables 1-3. The third component of the immediate post and six-week follow up survey were free text reflection questions on the process and new learning about clinical supervision. The findings of the paired data items and themes that emerged from the free text responses are reported.

C Participant Recruitment

Workshops using the clinical reasoning cycle and simulation were advertised via email to nursing supervisors based at healthcare facilities that hosted undergraduate students. Participants self-selected attendance at any one of four workshops being delivered. They were also offered the opportunity to participate in the study. Participants then completed a paper-based evaluation survey at the conclusion of the workshop. Results from the immediate post-workshop survey results were compared with a follow-up survey undertaken six-weeks after attendance at the workshop intervention. Participants were sent an email with a link to the online survey (Lime Survey). To enable follow-up of the impact of the intervention, three reminders were sent by email

at two-week intervals to participants. Ethical approval from the Tasmanian Human Research Ethics Committee was granted prior to the implementation of the study (H0012689).

D Data Analysis

Likert scale data was analysed using SPSS (Statistical Products for Social Sciences) Version 23, IBM, Armonk New York) Paired pre- and post-workshop intervention item scores were investigated using the Wilcoxon Signed Ranks test. Pooled post-intervention scores and six-week follow-up scores were investigated using Mann-Whitney *U* tests. Compliance with ethical considerations to maintain anonymity of online follow-up survey respondents excluded the possibility of paired analyses of this component. Median scores with interquartile ranges (IQR) are presented for each item. All tests were two-sided and differences were accepted as significant at $p < 0.05$.

Analysis of the free text questions was undertaken by exporting the data to Microsoft Excel (for Microsoft 365 MSO (16.0.13001.20266)). Phrases were coded into meaningful units as open codes (Elliot & Timulak, 2005). These open codes were then tabulated, labelled, and reduced from open to axial and then finally to selective codes to enable the sub-themes to be revealed. Theme development was undertaken independently by two researchers and then compared to ensure rigour.

IV RESULTS

A Participant Demographic Characteristics

Among the total 68 workshop participants, 60 nurses completed a pre- workshop survey (88.2% response rate) and 58 (85.3%) completed both the pre- and immediate post-workshop surveys.

More than half ($n=31$, 51.7%) of the 60 survey respondents were registered nurses (Level 1) and the most common age group was 51 to 60 years ($n=29$, 48.8%) (Table 1). Forty (67%) respondents were from rural environments while the remaining 20 (33%) were from metropolitan centres.

Table 1
Demographic characteristics of pre-intervention survey participants ($n=60$)

Demographic characteristics	n (%)
Professional role	
<i>Clinical Nurse</i>	9 (15.0)
<i>Registered Nurse</i>	31 (51.7)
<i>Nurse Manager or Educator</i>	20 (33.3)
Age (years)	
26-30	3 (5.0)
31-40	7 (11.7)
41-50	17 (28.3)
51-60	29 (48.4)
>60	4 (6.7)
Sex	
<i>Female</i>	56 (93.3)
<i>Male</i>	4 (6.7)
Years clinical supervision experience	
< 1	9 (15.0)

Demographic characteristics	n (%)
1-2	2 (3.3)
>2- 5	6 (10.0)
>5	43 (71.7)

Note. Clinical nurse (Level 2) or Registered nurse (Level 1) equates with the hierarchy of seniority within the Tasmanian State Service Award (Tasmanian Industrial Commission, 2020)

B Results of Pre- and Immediate Post-Workshop Intervention Surveys

Fifty-eight of the 68 participants completed both the pre- and post-workshop surveys. For all items, there was a significant difference ($p < 0.05$) between participants' pre- and post-workshop knowledge/skill assessments (Table 2). The largest improvement was for the item 'Stimulate students to apply the clinical reasoning cycle to learning situations' which increased from a median of 2.5 pre-workshop to a post-workshop score of 4.

Table 2
Pre- and post-intervention survey item scores (n=58)

Skill/ level (range 1=low skills to 5=high skills)	Pre- Workshop Median (IQR)	Post- Workshop Median (IQR)	p-value
Role of the clinical supervisor	3 (3, 4)	4 (4, 5)	<0.001
Motivating students	3 (2.75, 4)	4 (4, 5)	<0.001
Understanding the 'big picture'	3 (2, 4)	4 (4, 5)	<0.001
Using the clinical reasoning cycle	3 (2, 4)	4 (4, 5)	<0.001
Being skillfully judgmental	3 (2, 4)	4 (4, 5)	<0.001
Support strategies for student development	3 (2, 3.25)	4 (4, 5)	<0.001
Identify resources that will assist with supporting students in practice	3 (3, 4)	4 (4, 5)	<0.001
Identify learning needs with the student	3 (2.75, 4)	4 (4, 5)	<0.001
Provide ongoing, constructive feedback regarding progress	3 (2, 4)	4 (4, 5)	<0.001
Stimulate students to apply the clinical reasoning cycle to learning situations	2.5 (2, 3)	4 (4, 5)	<0.001
Adapt teaching to student's level of readiness	3 (3, 4)	4 (4, 5)	<0.001
Assist the student to identify strategies for growth and change	3 (3, 4)	4 (4, 5)	<0.001
Provide opportunities for the students to reflect on their learning	3 (3, 4)	4 (4, 5)	<0.001
Facilitate student collaboration with other members of the healthcare team	3 (3, 4)	4 (4, 5)	<0.001
Respond to concerns of the student	3.5 (3, 4)	4 (4, 5)	<0.001
Identify challenges that are an impediment to the student's learning	3 (2.75, 4)	4 (4, 5)	<0.001
Resolve challenges that are an impediment to the student's learning	3 (2, 4)	4 (4, 5)	<0.001
Consult appropriate resource persons for assistance when challenges arise	3 (3, 4)	4 (4, 5)	<0.001
Consult appropriate resources for assistance when challenges arise	3 (2.75, 4)	4 (4, 5)	<0.001

C Results of Follow-up Post-Workshop Survey

Thirty workshop participants completed a follow-up survey at six-weeks post-intervention of the workshop. For 15 of the 19 items, there were statistically significant differences in maintaining skill level at six-weeks compared to immediately post-workshop. However, the change in scores was relatively low, with a maximum of 0.5 decrease in median score at six-week follow-up. Thirteen items had equivalent median scores of 4 at post-workshop and at six-week follow-up. Although, there was a small downward shift in the spread of the data at six-week follow-up, as evidenced by the lower interquartile ranges at six-weeks for these items. For four items, there was no statistically significant difference in item score at six-week follow-up compared to post-intervention: 1) Role of the clinical supervisor, 2) Motivating students, 3) Responding to the concerns of students and 4) Consulting appropriate resources for assistance when challenges arise (Table 3).

Table 3
Item scores at post-workshop (n=58) and six-weeks post-workshop (n=30)

Skill/ level (range 1=low skills to 5=high skills)	Post-Workshop Median (IQR) (n=58)	6 Weeks Post- Workshop Median (IQR) (n=30)	p-value
Role of the clinical supervisor	4 (4, 5)	4 (4, 4.5)	0.14
Motivating students	4 (4, 5)	4 (3.5, 5)	0.17
Understanding the 'big picture'	4 (4, 5)	4 (3, 4)	0.01
Using the clinical reasoning cycle	4 (4, 5)	4 (3, 4)	0.02
Being skilfully judgmental	4 (4, 5)	3.5 (3, 4)	0.01
Support strategies for student development	4 (4, 5)	3.5 (2.25, 4)	0.001
Identify resources that will assist with supporting students in practice	4 (4, 5)	4 (3, 4)	<0.001
Identify learning needs with the student	4 (4, 5)	4 (3, 4)	0.02
Provide ongoing, constructive feedback regarding progress	4 (4, 5)	4 (3, 4)	0.03
Stimulate students to apply the clinical reasoning cycle to learning situations	4 (4, 5)	3.5 (3, 4)	0.004
Adapt teaching to student's level of readiness	4 (4, 5)	4 (3, 4)	0.01
Assist the student to identify strategies for growth and change	4 (4, 5)	3.5 (3, 4)	0.01
Provide opportunities for the students to reflect on their learning	4 (4, 5)	4 (3, 4)	0.01
Facilitate student collaboration with other members of the healthcare team	4 (4, 5)	4 (3, 4)	0.02
Respond to concerns of the student	4 (4, 5)	4 (3, 4)	0.09
Identify challenges that are an impediment to the student's learning	4 (4, 5)	3.5 (3, 4)	<0.001
Resolve challenges that are an impediment to the student's learning	4 (4, 5)	3.5 (3, 4)	0.01
Consult appropriate resource persons for assistance when challenges arise	4 (4, 5)	4 (3, 4)	0.02
Consult appropriate resources for assistance when challenges arise	4 (4, 5)	4 (3, 4.75)	0.06

D Results of Thematic Analysis of Post Workshop Intervention Surveys

1 Results of immediate post-workshop intervention

The third and final section of the survey included a series of 10 free text questions seeking further information about the workshop content and the opinions about returning to the workplace. Table 4 provides a summary of the questions and responses.

Table 4
Summary of immediate post evaluation survey free text responses

	Free text question	Number of free text responses (n=58)	%
1	What did you find most useful about the workshop?	57	98.3
2	What did you gain from the activity understanding learning "motivating students"?	44	78.9
3	What did you gain from the activity understanding thinking "The big picture"	52	89.7
4	Please explain how the clinical reasoning framework is a tool that you could use?	55	94.8
5	Please explain how the presentation on "being skilfully judgemental" could be useful to you?	48	83.8
6	How do you think the simulation activities could help you supervise students?	53	91.4
7	What did you gain from this workshop that was unexpected?	43	74.1
8	List three things you learnt today?	54	93.1
9	Will you think differently about clinical supervision as a result of this workshop?	56	96.6
10	Do you have suggestions about future learning and support for supervisors?	32	55.2

Due to the high response rate and richness of the data, initially an analysis of each question was undertaken. Three main themes emerged from the analysis and were related to 1) the clinical reasoning cycle, framework or tool supporting supervision and learning; 2) understanding the student perspective and their learning needs; and 3) the value of using simulation as a technique for learning. Communication being key (sub-theme 1) and evidence of self-reflection as a nurse supervisor (sub-theme 2) were sub-themes that also emerged depending on the focus of questions. A summary of the themes and examples of the participant responses in relation to these themes and sub-themes are provided in Table 5. A key of the themes and sub-themes for tables 5 and 7 is provided.

Key to Tables 5 and 7

Number	Theme
1	The clinical reasoning cycle, framework or tool supporting supervision and learning
2	Understanding the student perspective and their learning needs
3	The value of using simulation as a technique for learning
Number	Sub theme
1	Communication being key
2	Evidence of self-reflection as a nurse supervisor

Table 5
Summary of immediate post workshop intervention survey themes and sub themes and examples

Question	Theme	Example
1	1	Remembering how it feels to be a student, using the clinical reasoning cycle and being able to relate to students and their current education
1	2	A greater understanding of how students learn and the use of the CRC [clinical reasoning cycle]
1	2	Student perspective and their learning needs
1	3	I loved the experience in the simulation lab - this helped me understand how the students learn
2	2	Enhanced understanding of need to constructive feedback plus support and encouragement of use of analytical thinking to problem solve in order to interact more easily and so help in increasing motivation
2	2	To look beyond the obvious as to why and how students behave - not always simple
2	Sub-theme 1	Confidence in using appropriate language to help motivate students in their nursing journey
2	Sub-theme 2	A useful refreshment on possible student challenges which makes for a greater understanding of their pressures in clinical practice
3	1 and Sub-theme 1	Helping to understand the process that is behind actions. To help improve outcomes via communicating with students following this tool to prompt thought processes
3	2	In identifying problems, being a good supervisor and developing a positive relationship with the student to motivate them to progress and improve
3	2	How 'fragmented' student knowledge can be and how to give them opportunities to bring it all together
3	2 and Sub-theme 2	Not to make assumptions but to systematically move through the situations or experiences
3	3	Simulating the effect of the student's development and how it is pieced together depends on the information given
4	1	It gives cues as to what to ask the students to gain their perception of the experience. Direction for developing structured questioning
4	1 and Sub-theme 1	Helping to understand the process that is behind actions. To help improve outcomes via communicating with students following this tool to prompt thought processes
4	Sub-theme 1	We do this instinctively but good to know the language to use with students
5	2 and Sub-theme 2	Uses positive feedback as a positive approach and not a negative approach
5	Sub-theme 2	Increase my thought process and my care in assessment
5	2	It will help me to take my time when broaching issues with a student. Helping them to identify their learning needs and develop strategies, not just telling them what they did wrong!!
5	2 and Sub-theme 1	It will help me to communicate with a student in a non-confrontational way
6	3	Just helps me understand how people relate in a new/unusual situation. How anticipatory guidance can assist the PEP [professional experience placement] etc

Question	Theme	Example
6	3	Big learning curve on how it feels to be a student
6	Sub-theme 2	It provided understanding of how the student feels when places in a situation that is unfamiliar to them and what I need to do to support them
6	Sub-theme 2	Can see why poor information/poor instructions sets students up to fail. can see why preceptors need to give adequate instructions and to ensure understanding is established
7	1	Tool that can be used to assess students - knowledge, skills and attitudes
7	2 and Sub-theme 1	Re students: better understanding of how daunting doing a simple task can be if not given proper preparation
7	Sub-theme 2	The difference between good and poor students/supervisors is attitudinal not skill based
7	Sub-theme 2	The workshop has challenged my thinking/ looked at situation from the student's perspective a little more
8	1	Many of us think the same in a variety of ways understanding the clinical reasoning cycle and how it applies to more than learning
8	1 and Sub-theme 2	Clinical reasoning cycle some good debriefing techniques importance of giving feedback timely to improve a student's performance and working with the clinical facilitator and Uni
8	2	Lack of motivation can be based on 1. lack of goals 2. anxiety 3. fear of failure
8	2	People who are competent can be made to look like idiots if put in an unfamiliar environment without full instructions
9	2	Just a re-emphasis on being mindful of how stressful it is for students and to ?? that we must be very clear on direction
9	Sub-theme 2	I feel more confident in my role now. Hope to make PEP a rewarding experience for students, also support workplaces so that they will participate again
9	Sub-theme 2	Yes, I will reflect more on clinical supervision and try not to make assumptions
10	1	Ensure all preceptors have a good understanding of clinical reasoning
10	3	Should be compulsory for all educators and preceptors to attend; help with insight into (?) speak/thinking/standards
10	3	Simulation workshops to enhance clinical skill and knowledge - with skills that are not used every day - skills maintenance

Ninety-eight percent of participants provided free text responded to the question, "What did you find most useful about the workshop?" The main theme from this question related to the clinical reasoning cycle, framework or tool supporting supervision and learning. One participant stated "...this [workshop] will enhance my skills in preceptorship and in motivating students". Another participant stated "the whole learning concept for students, how as an RN [registered nurse] I can make students better learners".

In the second question participants were asked, "Please explain how the clinical reasoning framework is a tool that you could use?" Ninety-four percent of participants responded to this question. Being able to provide feedback to students within a framework that is common language between nurse supervisor and student emerged as important to participants. For example, "good to know the language to use with students". The theme of understanding the student perspective and their learning needs was highlighted in this question. Additionally, sub-theme 1 of communication was also evident in responses. Simulation, interactive sessions, or scenarios were mentioned, and the responses indicated the simulation activities assisted the nurse

supervisors to understand the learning concepts intended. The theme of the value of simulation as a technique for learning and how it could prompt self-reflection (sub-theme 2) was a highlight for participants. For example, one participant stated “the simulation...that highlighted unfamiliar situations and lack of goal setting makes it harder for students to achieve what is requested”.

2 Results of Follow-up Post-Workshop Survey

The six-week post workshop follow up survey included five free text questions. Two questions were the same as the first post evaluation questionnaire. Question one in the six-week follow up survey was the same as question 9 in immediate post-evaluation survey. Question three in the six-week follow up survey was the same as question 10 in the immediate post-evaluation survey. The response rate was lower for this online questionnaire than the previous hard copy surveys distributed at the workshops.

Fifty percent of the cohort of participants (n=30) responded to the follow up at six-weeks. Among participants who responded), not all responded to every free text question. The number of respondents per question is outlined in Table 6.

Table 6
Summary of follow-up post workshop intervention survey free text responses

	Free text question	Responses (n=30)	%
1	Are you thinking differently about clinical supervision as a result of this clinical reasoning workshop?	22	73.3
2	Are you acting differently about clinical supervision in your workplace?	22	73.3
3	Do you have suggestions about future learning and support for clinical supervisors?	18	60.0
4	Do you have any other comments about using the clinical reasoning model?	15	53.3
5	Do you have any comments about clinical supervision?	9	30.0

Thematic analysis was undertaken in a similar manner to the previous post-evaluation questionnaire, although the lower response rate decreased the richness of the responses. Two of the main themes from the previous survey emerged again, in part due to two of the same questions being asked. The clinical reasoning cycle as a tool and understanding the student perspective and their learning needs were themes that emerged from these responses. Simulation was not a focus of participant responses, however, the on-going need for resources such as scenarios were suggested. Participants also indicated the value of continuing professional development opportunities and the importance of being contemporary in their approach to student learning and the university curriculum. Examples of the themes are expressed in Table 7.

Table 7
Summary of follow-up post workshop intervention survey themes and sub themes and examples

Question	Theme	Example
1	1	By challenging the students by encouraging their points of view through clinical reasoning - why they came to that answer?
1	2	Student learning aware that explanations need to be exact. Need to explain to the student what is required, or students may assume and make it up
1	Sub-theme 2	Yes, feel more confident in identifying learning needs and why students stop learning sometimes
2	1 and Sub-theme 2	I am feeling more confident, using the clinical reasoning cycle provides support for decisions I might need to make regarding a student's progress/application

Question	Theme	Example
2	2	Yes. Approach students differently when identifying potential needs in their learning or determining problems, especially in the area of goal setting, and actioning on these goals - does the student understand fully what they want to do and why
2	Sub-theme 2	Yes, I am thinking about the information I am gathering in different ways, also discussing same a lot more with staff
3	1	Possibly some case scenarios which can be used to illustrate the clinical reasoning cycle
4	1	Very useful tool to go through with student /learner when there is a variation of opinion as to where they are up to in clinical practice
4	1 and Sub-theme 1	No. It is logical, need(s) demonstrating to ward staff so learner and preceptor are both on the same page with terminology
5	1 and Sub-theme 1	I like the clinical reasoning cycle as we can all use it to guide our practice and communication
5	2	Enables the supervisor to learn not only about the student but also about the way the student thinks and why (in a safe environment)

V DISCUSSION

The results from the workshops indicated there was a significant increase in the immediate post-workshop scores. Longer-term follow-up revealed there was only a slight decrease in 15 of the 19 scores six-weeks later. The evaluation confirmed that the workshop had merit for the self-selected participants, improving their skills for assisting students to learn during WIL. The findings supported professional development of nurse supervisors is valuable for maintaining Standard 3 of the registered nurse standards for practice (Nursing and Midwifery Board of Australia, 2016). The feedback from the workshops showed that staff from partner organisations that support WIL benefitted by increased confidence, knowledge and skills in enabling the professional development of themselves and their students (Nursing and Midwifery Board of Australia, 2016). The workshop evaluation also confirmed that the clinical reasoning cycle as the theoretical framework was an effective resource for nurse supervisors to guide students during supervision. The largest improvement in the study was for the item “Stimulate students to apply the clinical reasoning cycle to learning situations”, which moved from 2.5 on the Likert scale (pre- workshop) to a score of 4 immediately post-workshop and was the largest change in median score. In the follow-up period six weeks later, the median score remained 3.5 indicating the learning was mostly maintained for this item. Overall, the workshop results demonstrated an immediate increase in skill ratings from participation in the workshop activities and only a slight decrease in some skill ratings at the time-point six weeks later. The free-text responses indicated participants were embedding the clinical reasoning cycle in their nursing practice and promoting it among their colleagues. Being able to use a common language with students persisted as a theme in the follow-up survey.

Having nurse supervisors educationally prepared to facilitate learning in clinical settings benefits students’ development (Ford et al., 2016). It is well recognised that nurse supervision is an important criteria for improving the competency of new graduate nurses (Bartlett et al., 2000; Browning & Pront, 2015) and yet years later Browning and Pront (2015) found that an educational framework for preparation of the role of nurse supervision was lacking. Berndtsson et al. (2020) found that workplace learning for student nurses still has no particular model. This study found that using the clinical reasoning cycle enabled participants to employ a tool to assist with understanding student learning and identify issues regarding lack of progress. Participants also indicated they were able to use the tool to provide feedback to students. It also supported the finding that nurse supervisors found the simulation activities to facilitate self-reflection about the student perspective, which participants could incorporate into their clinical teaching. Previous studies have undertaken surveys with undergraduate nurses in an attempt to find the best

supervision model to support students during WIL and consistently find that the quality of support received is more important than any particular model (Brown et al., 2013; Franklin, 2013; Marlow & Mather, 2017; Walker et al., 2013; Zournazis et al., 2018). Hence, supporting and improving the skills of nurse supervisors is an important strategy to enhance the quality of the support during WIL. The quality of nurse supervision may ultimately affect the calibre of a graduate student (Health Workforce Australia, 2011).

It has been reported that a large proportion of nurse supervisors have no formal academic training in learning and teaching principles (Browning & Pront, 2015; Ehrenberg & Häggblom, 2007; Waldock, 2010) nor are they familiar with the academic theory and skills students are taught (Browning & Pront, 2015; Hall, 2016; C. A. Mather et al., 2015). There is also a lack of evidence for best practice in preparing nurse supervisors for the role (Hall, 2016, Berndtsson et al., 2020). The findings indicated participants found the clinical reasoning cycle was a useful tool for supporting discussion about nursing practice and for feedback to students about their performance during WIL. Additionally, participants stated they planned to incorporate the use of the tool within their own practice and disseminate information about the tool to other clinicians. Interactive simulation was found to be a useful technique for participants to understand how students may feel in unfamiliar environments, and how nursing practice and individual behaviour can affect student capability and cognitive function. Therefore, professional development models that focus on preparation of nurse supervisors with a theoretical framework aligned to the academic curriculum, and include resources concerning learning and teaching strategies, should be considered. Such a programme has the potential to support quality clinical placements for nursing students by encouraging the development of mutual respect between nurse supervisors and students through shared understanding that can facilitate learning (Ford et al., 2016).

The findings of the follow-up survey indicated continuing professional education designed to retain, reinforce, or consolidate previous learning could be useful to maintain and enhance nurse supervisors' confidence, knowledge and skills (Marlow & Mather, 2017). Further research to understand the continuing professional development activities that could augment learning and assist with retention or maintenance of newly acquired knowledge and skills is warranted. Additionally, participants at six-weeks post intervention indicated access more interactive simulation or scenarios would be beneficial to their role of nurse supervisors.

Enhancing supervisor's skill aligns with students' perceptions that the quality of the support provided is more important than any model of supervision. It also aligns with the independent report (Schwartz, 2019) that student support and supervision should be equitable and that all WIL experiences should be of the same standard. Standardising and accrediting placement providers is a recommendation of the review of nurse education (Schwartz 2019), indicating that steps need to be taken to enable qualification of those who supervise students of nursing while on placement-based WIL. The idea that an enabled nurse supervisor will improve the calibre (Health Workforce Australia, 2011) of graduate students entering the workforce points to the importance of research that investigates and provides further information about models, education and frameworks to prepare nurse supervisors. Additionally, the time and cost involved with the provision of safe and effective WIL experiences makes it essential that the role of nurse supervisor is both rewarding and beneficial to all stakeholders including the higher education institution, healthcare facilities, nurse supervisors and students. The findings of this study show that the inclusion of a theoretical framework such as the clinical reasoning cycle that aligns with the academic curriculum significantly improved the confidence levels of the supervisors to support student learning.

A Limitations

Limitations of the research include respondent bias inherent with this type of study. Additionally, recall bias by participants may have falsely increased the level of improvement by the participants. The findings may also have an element of positive response bias as surveys were distributed by the academics conducting the workshops.

B Future Directions

Further research to investigate the students' perceptions of nurse supervisors who apply the clinical reasoning cycle to learning situations may provide insight to the quality of supervision that the interactive simulation using the clinical reasoning workshop intervention provided. Furthermore, implementation of workshop activities with a larger cohort of participants could provide additional information regarding the sustained impact of this strategy for supporting and improving the confidence, knowledge and skills of nurse supervisors and therefore enhancing the quality of practice-based WIL.

VI CONCLUSION

There was significant increase in pre- and immediate post-workshop knowledge and skill ratings of participants. Longer-term follow-up showed learning was sustained at six-weeks after the intervention. The workshop evaluation also confirmed activities using the clinical reasoning cycle as the theoretical framework is an effective resource for nurse supervisors therefore closing the gap on enhancing supervisor knowledge and skills. The findings show inclusion of the theoretical framework of the clinical reasoning cycle applied during the interactive simulation activities produced significant change in nurse supervisor's knowledge, skills, and confidence ratings. The findings indicate interactive simulation activities provide continuing professional development opportunities that have the potential to enhance the quality of practice-based WIL and optimise the learning opportunities of students undertaking this essential element of an undergraduate nursing degree.

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