

# **The Lived Experiences of Operating Theatre Scrub Nurses Learning Technical Scrub Skills**

**“I’m doing this right, aren’t I? Am I doing this right?”**

Eleanor J Radford\* BNurs, MRes  
Band 5 Nurse, Ophthalmic department, St Richard’s Hospital,  
Western Sussex Hospital NHS Foundation Trust, Chichester,  
West Sussex.

Theo Fotis BSc, MSc, PhD, FHEA  
Principal Lecturer, School of Health Sciences,  
University of Brighton

\*Corresponding author

Eleanor J Radford

Ophthalmic Department, St Richard’s Hospital, Spitalfield Lane,  
Chichester,

West Sussex PO19 6SE

E Mail: [elradford@hotmail.co.uk](mailto:elradford@hotmail.co.uk)

## **Abstract**

**Background:** Operating theatre scrub nurses (OTSNs) are not required to have completed or to have undertaken a secondary or specialist post-registration theatre qualification to work in the operating theatre (OT) setting in the UK. From the systematic review there is only very limited literature or research in how technical scrub skills are acquired.

**Aim:** This study explores the lived experiences of OTSNs learning technical scrub skills.

**Methods:** The study employed the qualitative methodology of Interpretative Phenomenological Analysis. Data was collected from six participating OTSNs using semi-structured interviews.

**Findings:** Four superordinate themes emerged; How technical scrub skills are established, Gatekeepers, How the learner feels whilst learning and Reflections of the experienced scrub nurse.

**Discussion and Conclusion:** The study has found the experiences of OTSNs learning technical scrub skills are varied and a variety of teaching and learning methods are utilised. These experiences were influenced by the team, mentor, and surgeon within the OT environment. Lived experiences were also influenced by organisational structure and service pressures within the NHS.

**Keywords:** Technical Scrub Skills, Perioperative, Lived Experiences

## **Introduction**

Practicing operating theatre scrub nurses (OTSNs) have a distinct role which requires a different skill emphasis from nursing in other settings (Barry 2009). The Operating Theatre (OT) is a unique, high risk, multi-disciplinary setting where OTSNs work under high levels of scrutiny to perform both technical and non-technical tasks to shape safe and effective surgical outcomes (Catchpole et al 2009, Mitchell et al 2011). For OTSNs, technical scrub skills form the foundation of their practice. The definition of technical skills is broad and there is constant change and development within practice (White & Coleman 2000). Technical scrub skills training maybe limited or absent during pre-registration education in comparison to the technical skills demanded of a ward nurse.

A systematic approach to the literature review was undertaken. Initially meSH® browser was used to explore the key words and extrapolate similar phrases or terms. These phrases were then used to search the Cochrane Library, NICE Evidence, Up to date and the Trip database using the free text terms “perioperative nursing” “scrub nurse” and “technical scrub skills”. Other than the Cochrane Library the other databases did return a limited number of items but on hand searching proved irrelevant. Subsequently a broader search from the year 2000 onwards with a wider focus on the role of OTSN within the OT setting was constructed to run on the healthcare databases: CINHAL, BNI, EMBASE, Medline and AMED. BNI returned the highest with 330 articles and AMED returned 13 articles. Both quantitative and qualitative articles returned from these searches were then reviewed by title and abstract for relevance.

Over the last fifteen years the literature relating to OTSNs has strongly focused on cognitive, social and situational awareness skills (Mitchell & Flin 2008). In comparison, there is a paucity of literature on gaining technical skills which if not learnt or correctly taught, has implications for the practice and development of the OTSN and importantly on patient safety and patient outcome. Currently OTSNs are not required to have completed or to have undertaken a post-registration theatre qualification in the UK (Miller 2014). Although theatre placements are available, many OTSNs commence working in theatre with a graduate qualification which may have provided only observation of a patient’s journey through the surgical care pathway. Hence from the literature it would appear that most OTSNs learn their specialised perioperative skills largely by learning whilst working in the OT (Mitchell & Flin 2008). It is argued that pre-registration education alone does not prepare a nurse for the required level of

engagement that is expected within the OT setting (Miller 2014). There is a gap in provision of specialist OT education and as a clinical area the OT department has lagged behind education in other acute clinical areas (Miller 2014).

Drivers from NHS England and specific reports on patient safety have begun to shift the balance towards a wider focus with an emphasis on technical or practical skills in nursing education and practice (NHS England 2014, Catchpole et al, 2009, The Mid-Staffordshire NHS FT 2013, National Quality Board 2013). The relevance of the OTSNs' ability to perform these technical scrub skills safely and effectively is essential for and integral to patient safety. Between April to November 2014, 197 "Never Events" were reported to NHS England (NHS England Patient safety domain 2014). Catchpole et al (2009) and NHS England (2014) highlighted the need for appropriate selection and training of personnel to prevent "Never Events".

This research is important in order to improve the understanding of how OTSNs learn their technical scrub skills and with an improved understanding of the lived experiences of OTSNs, insight will be gained and an exploratory foundation will be established. To inform understanding and to explore this gap in the literature the following research question 'What are the lived experiences of OTSNs learning technical scrub skills?' and study aim 'To explore the lived experiences of OTSNs learning technical scrub skills' were developed.

## **Methods**

### **Research design**

A nurse Patient Public Involvement (PPI) peer review group was established to assist with research design. Three groups of operating theatre scrub nurses (OTSN) working within elective, trauma/emergency surgery and day surgery were formed using an opportunist approach. Ethical approval was gained from the University of Brighton, (REGC-15.048.R2). The study employed an approach rooted in the qualitative methodology of Interpretative Phenomenological Analysis (IPA). The study population were OTSNs who fulfilled the inclusion and exclusion criteria (Table 1).

**Table 1** Participant inclusion and exclusion criteria

<b>Inclusion criteria</b>
<ul style="list-style-type: none"> <li>Registered Nurses who were working for fifteen hours or more per week in a unsupervised role working in OTSN post</li> </ul>
<ul style="list-style-type: none"> <li>Registered Nurses who undertook a dual role (OTSN role and anaesthetics or recovery or First Surgical Assistant) if they were undertaking an OTSN role for at least fifteen hours a week</li> </ul>
<b>Exclusion criteria</b>
<ul style="list-style-type: none"> <li>Registered Operating Department Practitioners</li> </ul>
<ul style="list-style-type: none"> <li>Registered Nurses who were still working under supervision</li> </ul>
<ul style="list-style-type: none"> <li>Student Nurses</li> </ul>

A convenience sampling approach was adopted. A sample size of six participants was selected as guided by Smith et al 2009. Volunteers were sought using an online advertisement placed on the Royal College of Nursing and Association of Perioperative Practitioners (AfPP) online forum. Once a participant had confirmed, arrangements were made for the interview and informed consent received. Each participant was offered a choice between a face to face interview at a time and location convenient to them or an interview using Skype® or Facetime®. All interviews were conducted on line, followed the same interview schedule (Table 2) and were audio recorded.

**Table 2** Topic Guide

1. Can you tell me about your current theatre scrub role?
2. How have you acquired your technical scrub skills so far?
3. Can you tell me about your experiences of learning your technical scrub skills to date?
4. Can you tell me “Who” has influenced your experiences of learning your technical scrub skills?
5. Can you tell me “What” has influenced your experiences of learning your technical scrub skills?

Recordings were stored on a password protected encrypted electronic storage device. Coding was used for the duration of the study to anonymise the data and ensure that participants were not identifiable. In the study analysis participant numbers were randomly allocated. At the commencement of the interview, reiteration to ensure that informed consent was received for use of verbatim quotes in publications was confirmed.

### **Analysis**

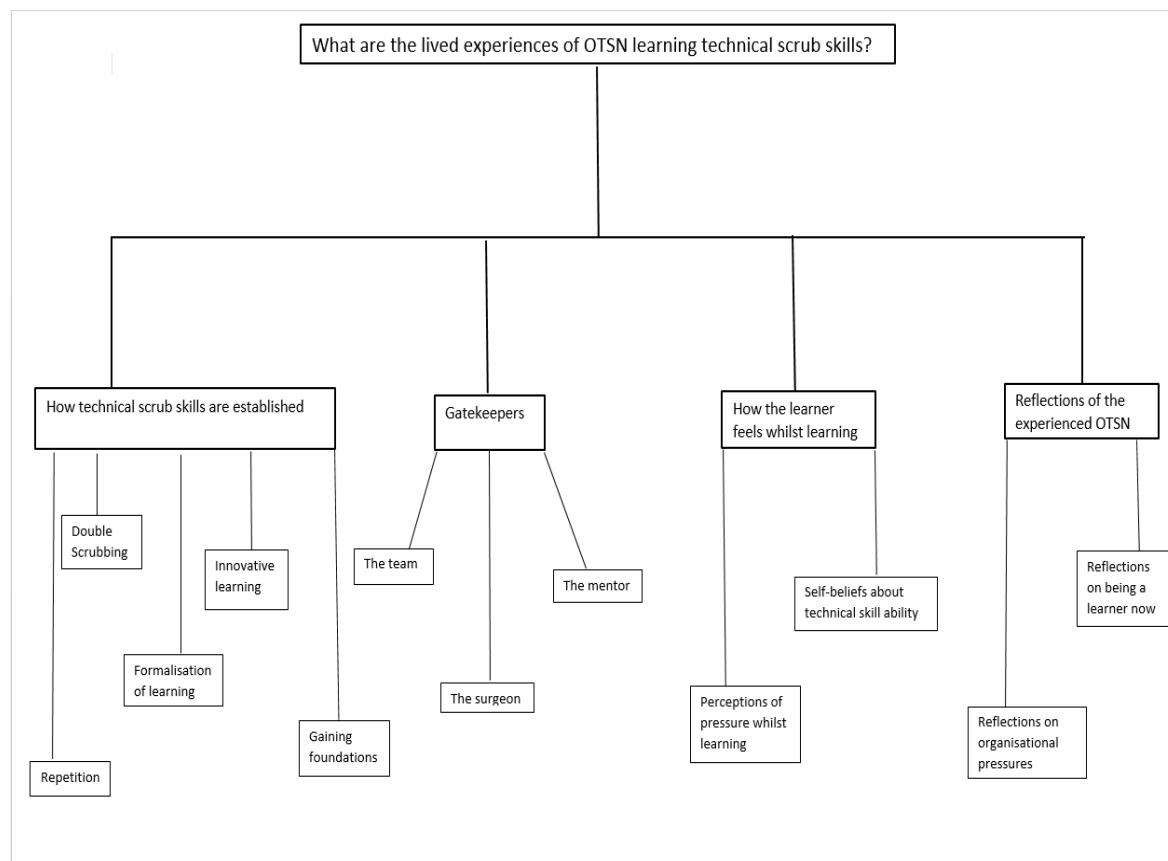
The approach to data analysis was guided by the analytical process of IPA using the six step guide suggested by Smith et al 2009. After transcription of the interviews, initial exploratory noting was undertaken. Transcripts were examined for descriptive, linguistic and conceptual elements. The conceptual comments required a move away from the explicit meanings and demanded a shift to a more interrogative approach to gain a deeper insight. At this stage with the developing emergent themes, connections across the themes were re-examined in the transcripts. Themes were developed to reflect an understanding of the most important and meaningful aspects of the experience for each OTSN. Each theme was recorded on a participant theme sheet with verbatim quotations. Utilising a mapping process the emergent themes were studied to identify connections, parallels and oppositions between the themes. In the final step of the analysis phase, patterns between the participants were used to develop a hierarchy of underpinning themes and thus the super-ordinate themes.

## **Findings**

The analysis revealed four superordinate themes; How technical scrub skills are established, Gatekeepers, How the learner feels whilst learning and Reflections of the experienced scrub nurse.

Figure 1 demonstrates the hierarchy of themes with the four superordinate themes and twelve themes revealed by the analysis.

**Figure 1.** Hierarchy of themes



### **Superordinate Theme: How technical scrub skills are established**

This superordinate theme explored the diversity in the ways in which the participants learnt their technical skills. Five themes were identified.

#### **Repetition**

Repetition describes the frequency that an OTSN would have opportunity to work with either the same surgeon or on similar lists. This theme was deemed to be an integral part of learning technical skills.

*“It helps if you if you can do lots of similar cases one after the other. It reinforces the learning and reinforces what you what you do next” (P6)*

### **Double Scrubbing**

Double scrubbing, whereby a more experienced colleague scrubs in with a less experienced colleague, was viewed as integral and significant for learning.

*“That was really [sic. great emphasis on the word really] how I learnt was by double scrubbing with the senior staff” (P2)*

### **Formalisation of learning**

Participants discussed informality and lack of structure within their training with varying degrees of formal assessment. One participant (P5) was unsure about the format of their learning.

*“There wasn’t a written competency package, it was, but it wasn’t ad hoc” (P5)*

In contrast Participant 2 highlighted their formalised learning with the use of a folder to compile evidence and complete basic competencies.

*“I had a package which was like an A4 folder and it had lots and lots of different things in about how to scrub theatre etiquette how to scrub ummm procedures ummm basic competencies” (P2)*

### **Innovative learning**

Three participants (P2, P4, P5) identified innovative practical ways in their learning of instrumentation.

*“I had like ummm a photocopy of instruments that I had to you know it was a bit like a ummm a fact finding I had to write the names of the instruments down” (P2)*

Participant 4 built their own reference tool to learn the sets and this is suggestive of lack of resources.

*“I used to take pictures above the set and errrr photocopy the lists then at home I can check between my picture and my list what is what” (P4)*

### **Gaining Foundations**



This theme acknowledged the need for the qualified nurses to establish a basic foundation of new knowledge to learn technical scrub skills. Participants stressed the importance of anatomy in providing a foundation for developing technical scrub skills. Participants identified a knowledge gap between their pre-registration education and the requirements of a scrub nurse.

*“Very basics how to handle myself at the table, basic anatomy umm some basic positioning” “They taught me from the very basics so, I didn’t know much about the anatomy of bone and joints” (P5)*

The recognition of being unsure and seeking out reassurance was highlighted indicating that this participant either lacked confidence and potentially felt unsupported.

*“When you first start you really want that extra reassurance and that I’m doing this right aren’t I? Am I doing this right?” (P1)*

## **Superordinate Theme: Gatekeepers**

The superordinate theme “gatekeepers” draws together the three key groups, The Team, Surgeon and Mentor, who facilitate, control learning and influence experiences.

### **The Team**

Most participants identified that team support was an important factor in their learning. Participants (P2, P3, P4) recognised a hierarchical experienced team structure and constancy of team members as valuable.

*“That team that I started in were a real sort of solid supportive team, which is where I think I have been quite lucky” (P2)*

### **The Surgeon**

All participants passed commentary on the impact the surgeon had on their learning experiences. Participant 2 was negatively affected by the behaviour of certain surgeons. In contrast, participant (P5) confidently indicated “fitting in” with inference that their social connections afforded them kinship.

*“It is so intimidating as a new scrub nurse to have to scrub with surgeons like that, but actually the sooner you do it, get your thick skin, get over it, you know you are fine” (P2)*

*“I fit in quite nicely with the surgeons and in fact I play rugby with some of the surgeons” (P5)*

## **The Mentor**

All participants expressed commentary on the value of the mentor. Three participants (P4, P2, P3) valued their mentor as important, committed consistent and constant. One participant (P2) used the word “lucky” to express their fortune in gaining a committed mentor.

*“The very important person your mentor is” (P4)*

*“I think I was really lucky in the mentor who I had ummmm was really quite sort of ummm committed to making a good scrub nurse” (P2)*

However, Participant 6 discussed the negative influence of a mentor.

*“One of my friends, her mentor wasn’t exactly very approachable, so it kinda it kinda hindered her learning, whereas with mine [sic. Mentor] she was more than happy” (P6)*

## **Superordinate Theme: How the learner feels whilst learning**

This superordinate theme explored both ‘perceptions of pressure’ and ‘beliefs about technical ability’ whilst learning. All but one participant alluded to some aspect of pressure in learning their technical scrub skills.

### **Perceptions of pressure whilst learning**

*“You know you put a great deal of pressure on yourself to succeed” (P1)*

*“Ummm it was bloody hard work [laughs]” (P2)*

*“Ummmm there is just so much to take in isn’t there and to learn” (P3)*

### **Self-beliefs about technical skill ability**

This theme encompassed the overarching sentiment of doubt and recognised the potential need to be seen as a credible team member.

*“What the heck [sic. loudly and with emphasis], how did I even get that far?” (P1)*

*"I am not as good, as competent as other people think I am. I am not as confident as I can appear at the table" (P2)*

### **Superordinate Theme: Reflections of the experienced Scrub Nurse**

Reflections of the experience scrub nurse recognised the impact of organisational changes for the experienced scrub nurse teaching learners. The four more experienced participants provided commentary.

#### **Reflections on organisational pressures**

Participant 2 highlighted the significant importance given to skill mix within the theatre team in previous years.

*"Skill mix which was a huge thing when I started, it was a HUGE thing, you had to have the right skill mix so, but now it is numbers that is all they seem to be bothered about" (P2)*

Increased pressure was acknowledged by participant 5 with reference to increased complexity and increased cancellations. Interestingly one participant (P3) reflected that during their period as a learner they were "blinker" towards time management demands as they were fully immersed in mastering the technical tasks.

*"I think nowadays pressure that we see, I think more pressure on our services ummmm and it just leads to more people being cancelled" (P5)*

*"I think when you first start you are so blinkered you can only see what you've got to do, but I don't think, the time thing was such an issue to me then as it is now" (P3)*

#### **Reflections on being a learner now**

This theme draws out the reflections of experienced scrub nurse in comparing how they learnt their technical scrub skills and what theatre departments currently offer. Participant 5 placed enormous emphasis on the acquisition of "very" basic skills with the implication that they provide a foundation for all future practice.

*"If you don't teach people properly from the off the very very very basic stuff then they are gonna look a fool when they go to other areas" (P5)*

Participant 6 recognised lack of time and support for learners in current theatre practice.

*"I feel kinda sorry for them because they are not getting the time to learn how I did, they are kinda being thrown in at the deep end" (P6)*

## **Discussion**

The importance of technical scrub skills as integral to the OTSN role was clearly recognised in this study. The limitations of the study were those common to qualitative study with the in-depth understanding of only a small sample. To support transferability to a wider population further larger studies are needed with the use of questionnaires to reach a greater and wider sample of OTSNs. However, nurses entering the perioperative arena for first time lack both "knowing that" and "knowing how" (Veltri 2015). McHugh & Lake (2010) stated that a sound theoretical knowledge enables a nurse to ask the right questions to provide safe patient care. The lack of structured development and direction for the learner is compounded by the fact that currently there is no professional requirement for OTSNs to undertake a post registration specialist theatre qualification or to follow a structured pathway to allow them to work within the speciality (Miller 2014). Across the superordinate theme of "How technical scrub skills are established" it was clear that there was no standardisation of what was taught. This highlights how difficult it is for the learner to establish what is expected of them and what they should know.

In line with Pupkiewicz et al (2015), all the participants in the current study modelled a form of apprentice learning. This notion is supported by themes including 'repetition', 'double scrubbing' and 'the mentor'. This is an integral part of nurse education within the OT as it allows knowledge and practical skills to be contextualised. Participants in the current study not only focused on the need to recognise instruments but also on the need to develop a real understanding of their function in relation to anatomy. High fidelity simulation based learning is a fast developing area and provides accessibility to a protective environment for translation of theoretical knowledge into practical application (Roberts & Greene 2011). It could be argued that double scrubbing, an established teaching and learning method, fulfils a similar role without the need for expensive facilities.

The OT working practices and surgical process dictates the need for close team work. It requires a number of professionals to work together fulfilling their own roles and responsibilities but collectively working together (Espinoza et al 2016). Therefore for the OTSN learning technical scrub skills there is a strong reliance on the team for support but this also facilitates high levels of scrutiny regarding the performance of technical scrub skills within OT (Catchpole et al 2009; Mitchell et al 2011). In the current study participants valued the support of a well-structured and hierarchical team as well as mentors who were able to facilitate their learning.

Modern healthcare is constantly developing and changing driven by professional, political and economic forums (Radford 2004). As experienced OTSNs, participants reflected on lack of staff numbers, poor skill mix, increasing complexity of work and time pressures. Bezemer et al (2016) highlighted that increasingly within the OT setting, teams have become progressively more “transient”. This has implications for the novice OTSN due to lack of opportunity to gain repetition, constantly having to establish themselves within the team.

It is acknowledged that organisations that support and facilitate professional development in a supportive clinical environment can ensure nurses are able to attain and improve their clinical skills (Lake & Friese 2006). There is clearly a need for a solid foundation of core skills, which underpin this area of specialist clinical practice. For the OTSN to be able to respond to the current challenges of the OT environment there is a clear need for an initial post registration pathway and programme. Collaboration between the Association of Perioperative practice and other specialist working parties, Universities and NHS Trusts is needed to produce a feasible blended learning package.

## **Conclusions**

This study found that OTSN experiences of learning technical scrub skills were varied and a variety of teaching and learning methods are used. The lived experience of OTSN learning technical scrub skills was influenced by the team, mentor and surgeon. Organisational structure and service pressures within the NHS also influence the lived experiences of OTSNs. There is clearly an education and training gap in the speciality of perioperative nursing at undergraduate level and a need for

development of training programmes for OTSNs new to their role. This has significant implications for practice and research needs to be conducted in this area to ensure that a skills gap does not emerge.

#### Acknowledgements

This work was supported by The National Institute of Health Research MRes Programme at the University of Brighton. Thank you to my former colleagues at the Sussex Orthopaedic Treatment Centre for their support, care and interest and to all of the participants in this study, who gave their time so freely. Last we would like to acknowledge the support of the AfPP in the recruitment process.

## References

- Barry, P 2009 A critical analysis of theatre as a learning environment in relation to placement duration *The Journal of Perioperative Practice* 19 (12) 433-435
- Bezemer J, Korkiakangas T, Weldon S, Kress G, Kneebone R 2016 Unsettled teamwork: communication and learning in the operating theatres of an urban hospital *Journal of Advanced Nursing* 72 (2) 361-372
- Catchpole K, Panesar S S, Russell J, Tang V, Hibbert, P, Cleary K 2009 **Surgical safety can be improved through better understanding of incidents reported to a national database** London, National Patient Safety Agency
- Epinoza P, Galaz Letelier L M, Cuncil Leppe L D, Yercic Bravo M, Ferdinand C, Ferrer Laguas L 2016 The healthcare team's perception of the role of the perioperative nurse: a qualitative study *Journal of Perioperative Practice* 26 (9) 189-194
- Lake E T, Friese C R 2006 Variation in nursing practice environment, relation to staffing and hospital characteristics *Nursing Research* 55 (1) 1-9
- McHugh M D, Lake E T 2010 Understanding clinical expertise: Nurse education, experience and the hospital context *Research in Nursing & Health* 33 276-287
- Miller G 2014 We need an educated voice! *Journal of Perioperative Practice* 24 (6) 130-134
- Mitchell L, Flin R 2008 Non-technical skills of the operating theatre scrub nurse: literature review *Journal of Advanced Nursing* 63 (11) 15-24
- Mitchell L, Flin R, Yule S, Mitchell J, Coutts K, Youngson G 2011 Thinking ahead of the surgeon. An interview study to identify scrub nurses' non-technical skills *International Journal of Nursing Studies* 48 818-828
- National Quality Board 2013 **Human Factors in Healthcare: a concordat from the National Quality Board** [Online] Available from: <https://www.england.nhs.uk/wp-content/uploads/2013/11/nqb-hum-fact-concord.pdf> [Accessed June 2016]
- NHS England 2014 **Standardise, educate, harmonise: Commissioning the conditions for safer surgery** London, NHS England.
- NHS England Patient Safety Domain 2014 **Provisional publication of never events reported as occurring between 1<sup>st</sup> April and 30<sup>th</sup> November 2014** [Online] Available from: <http://www.england.nhs.uk/wp-content/uploads/2014/12/Provisional-NE-data-Apr-Nov2014FINAL.pdf> [Accessed January 2017]
- Pupkiewicz J, Kitson A, Perry J 2015 What factors within the peri-operative environment influence the training of scrub nurses? *Nurse Education in Practice* 15 (5) 373-380

Radford M 2004 Advanced and specialist perioperative practice. In: Radford M, County B, Oakley M (eds) **Advancing perioperative practice** Cheltenham, Nelson Thornes

Roberts D, Greene L 2011 The theatre of high-fidelity simulation education **Nurse Education Today** 31 694-698

Smith J A, Flowers P, Larkin M 2009 **Interpretative phenomenological analysis** London, Sage

The Mid Staffordshire NHS Foundation Trust Public Inquiry 2013 **Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive Summary [Francis Report]** [Online] Available from: <http://www.midstaffspublicinquiry.com/sites/default/files/report/Executive%20summary.pdf> [Accessed December 2016].

Veltri L M, 2015 Obstetrical staff nurses experiences of clinical learning **Nurse Education in Practice** 15 44-51

White J, Coleman M 2000 Threats and opportunities facing the theatre nurse **British Journal of Perioperative Nursing** 10 (5) 260-268