Faculty of Medicine, Dentistry and Health Sciences

Debriefing practices of rural medical educators: a mixed methods study

Kirsty Freeman
Student Number: 21526632

"This thesis is presented as part of the requirements for the award of the Master of Health Professional Education (90670) of the University of Western Australia"

May 2017
DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

I. incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;

II. contain any material previously published or written by another person except where due reference is made in the text of this thesis; or

III. contain any defamatory material;

Kirsty Freeman
ACKNOWLEDGEMENTS

Firstly, I would like to acknowledge the people who encouraged me to further my postgraduate studies, my colleagues from the international simulation community, who ignited my curiosity in research, continued to question my processes and motivated be throughout the journey.

Thank you to my supervisors Professor Sandra Carr and Professor Colleen Fisher for their unwavering support and leadership. Their experience and advice were essential in guiding me through to the completion of my thesis.

I would like to express my appreciation to the Postgraduate Medical Education Unit at WA Country Health Service for their on-going support to compete this study. To the medical educators who responded to the survey and shared their experiences with facilitating debriefing in rural communities, thank you, without them the broader simulation community would not have such an insight into the practices of rural medical educators.

I would like to thank my dear friend Tania Arnold for her counsel and optimism when completing my Masters seemed impossible. Her perspective and reviews were of great benefit and her no-nonsense attitude allowed me to refocus and complete the work required.

Lastly I would like to acknowledge my family, thank you for always supporting my endeavours.
ABSTRACT

Any educator involved with the use of simulation knows that debriefing practice is key for effective transference of learning to practice. Based on a review of the literature there is a need to evaluate current debriefing practices to ensure that medical educators in the rural setting have the appropriate skills to deliver effective simulation-based education. This thesis describes the debriefing practices of rural medical educators in Western Australia.

This study used a mixed methods sequential explanatory design. Priority was given to the qualitative component of the study (i.e., quan → QUAL). In the first phase of this study, demographic data were collected first using an online survey. Regional medical educators from the Western Australian Country Health Service special interest email database were invited to participate in the study. Of those who responded in phase one, purposeful sampling was used to select participants for the second phase. In the second phase of the study the Debriefing Assessment for Simulation in Healthcare (DASH) tool was used to rate the effectiveness for the debrief from three different perspectives: the learner, the debriefer, and the researcher. The DASH tool tracks and rates six key elements of a debrief:

1. Establishes an engaging learning environment
2. Maintains an engaging learning environment
3. Structures debriefing in an organised way
4. Provokes engaging discussion
5. Identifies and explores performance gaps
6. Helps trainees achieve or sustain good future performance.

There was a statistically significant difference between debriefer and learner groups across elements two to six, with no statistically significant differences between the researcher and debriefer group.
To explore the findings of the quantitative data, respondents were invited to participate in individual semi-structured interviews that were audio recorded and transcribed for thematic analysis. Three key themes were identified following the data analysis around the debriefing practices of the respondents;

- What does debriefing mean to me?
- How do you bring the debrief to life?
- Connecting through the debrief for mutual learning

This study contributes to addressing the gap in the literature as it explores the current practices of the post simulation debriefing activities conducted by medical educators working in rural hospitals in Western Australia.
TABLE OF CONTENTS

DECLARATION ........................................................................................................................................... i
ACKNOWLEDGEMENTS ........................................................................................................................... ii
ABSTRACT .................................................................................................................................................... iii
LIST OF FIGURES ....................................................................................................................................... viii
LIST OF TABLES ........................................................................................................................................ ix

1 INTRODUCTION .................................................................................................................................. 10
  1.1 Introduction .................................................................................................................................... 10
  1.2 Background ................................................................................................................................... 10
  1.3 Rationale for Research ...................................................................................................................... 11
  1.4 Structure of Thesis ............................................................................................................................ 11

2 LITERATURE REVIEW ......................................................................................................................... 12
  2.1 Introduction .................................................................................................................................... 12
  2.2 Search Strategy ................................................................................................................................. 12
  2.3 Literature Review Structure ............................................................................................................... 12
  2.4 Simulation in Healthcare ................................................................................................................... 13
  2.5 Educational Theory ........................................................................................................................... 14
  2.6 Components of Simulation-Based Education ..................................................................................... 16
  2.7 Debriefing ....................................................................................................................................... 19
    2.7.1 Origins ..................................................................................................................................... 19
    2.7.2 Elements ................................................................................................................................... 20
    2.7.3 Method ..................................................................................................................................... 21
  2.8 The Debriefer ................................................................................................................................... 25
  2.9 Conclusion ....................................................................................................................................... 25

3 METHODOLOGY .................................................................................................................................. 27
  3.1 Introduction .................................................................................................................................... 27
  3.2 Research Questions ............................................................................................................................ 27
  3.3 Study Design .................................................................................................................................... 27
  3.4 Ethical Approval ............................................................................................................................... 30
  3.5 Participants ....................................................................................................................................... 30
    3.5.1 Group 1: Debriefers ................................................................................................................. 30
3.5.2 Group 2: Learners ................................................................. 32
3.6 Data Collection Methods .......................................................... 32
   3.6.1 Phase 1 - Quantitative ...................................................... 33
   3.6.2 Phase 2 - Qualitative ....................................................... 36
3.7 Analysis ................................................................................. 37
   3.7.1 Quantitative data analysis .................................................. 37
   3.7.2 Qualitative data analysis ................................................... 37
3.8 Summary ................................................................................. 38
4 RESULTS ..................................................................................... 40
   4.1 Introduction ........................................................................... 40
   4.2 Phase One Results ............................................................... 40
      4.2.1 Demographic data from electronic survey ......................... 40
      4.2.2 Summation of DASH responses from debriefing activities .... 48
   4.3 Phase Two Results ............................................................... 49
      4.3.1 What does the debrief mean to me? ................................. 50
      4.3.2 How do you bring the debrief to life? ............................... 55
      4.3.3 Connecting through the debrief for mutual learning ............ 62
   4.4 Summary ................................................................................. 65
5 DISCUSSION AND CONCLUSION .................................................. 66
   5.1 Overview .............................................................................. 66
   5.2 Discussion of findings .......................................................... 66
      5.2.1 Rural medical educator profile ....................................... 66
      5.2.2 How are debriefing sessions conducted in rural hospitals? .... 67
      5.2.3 How do the medical educators and learners perceive they are delivering/receiving simulation debriefing? ............................. 68
      5.2.4 What education or training do medical educators receive, and what demographic and training related factors may be associated with effective debriefing? ........................................... 69
      5.2.5 What do medical educators see as essential for an effective debrief in a rural setting? ................................................................. 71
5.2.6 What is the impact of ineffective debriefing on achievement of the stated learning objectives? .............................. 72

5.3 Researcher Reflections................................................................................................................. 73

5.4 Study Limitations....................................................................................................................... 73

5.5 Implications for educational practice .................................................................................... 74

5.6 Directions for future research.................................................................................................. 75

5.7 Summary ................................................................................................................................... 77

REFERENCES ..................................................................................................................................... 78

APPENDIX A Email Invitation to Participate.............................................................................. 84

APPENDIX B PARTICIPANT INFORMATION LETTER.......................................................... 86

APPENDIX D QUALTRICS ONLINE SURVEY............................................................................ 90

APPENDIX E DASH RATING TOOL............................................................................................. 97

APPENDIX F KRUSKAL-WALLIS TEST RESULTS................................................................. 100

APPENDIX G MANN-WHITNEY U TEST RESULTS................................................................. 103
LIST OF FIGURES

Figure 1 Kolb’s Learning Cycle Operationalised for SBE .................................................. 16
Figure 2: A model of the simulation setting............................................................................. 17
Figure 3: Simulation Phases adapted from Jolly, Nestel and Sprick 34 .................................... 18
Figure 4: Sequential Explanatory Design.................................................................................. 28
Figure 5: A mixed method sequential explanatory study to explore the debriefing
practices of rural medical educators (adapted from64) ....................................................... 33
Figure 6: WA Country Health Service Catchment Areas ....................................................... 41
Figure 7: Country in which pre-registration medical education occurred............................. 43
Figure 8: Site A Teaching/Debriefing Space ........................................................................ 46
Figure 9: Site B Teaching/Debriefing Space .......................................................................... 47
Figure 10: Site C Teaching/Debriefing Space ....................................................................... 47
Figure 11 Key themes for effective debriefing in the rural context...................................... 50
LIST OF TABLES

Table 1: The Elements of the Debriefing Process .......................................................... 20
Table 2: A Pragmatic Alternative to the Key Issues in Social Science Research Methodology (Morgan 66p71) ........................................................................................................ 29
Table 3: DASH Elements and Dimensions ........................................................................ 36
Table 4: Phases of thematic analysis .................................................................................. 38
Table 5: Where are you currently working? ...................................................................... 40
Table 6: Gender per region ............................................................................................... 42
Table 7: Age ranges of respondents .................................................................................. 42
Table 8: Role Classification .............................................................................................. 44
Table 9: Clinical Area ........................................................................................................ 44
Table 10: Definition of Simulation-based Education .......................................................... 45
Table 11: Respondents rating of the Importance of debriefing ......................................... 48
Table 12: Rater Groups .................................................................................................... 48
INTRODUCTION

1.1 Introduction
This chapter provides a context for the research, presenting a background to the use of simulation in rural Western Australia. The rationale for the study and the structure of the thesis are described.

1.2 Background
With an increasing emphasis on patient safety, simulation has become an essential component in the undergraduate and postgraduate training of healthcare professionals.\(^1\) In rural clinical settings the make-up of the healthcare team can often look very different to those found in metropolitan settings, often resulting in more junior staff taking on a leadership role when dealing with deteriorating patient situations. Simulation provides those working in rural settings a vehicle to prepare and train not only for the low frequency, high risk clinical cases, but for the day-to-day clinical encounters that present themselves.\(^3\) With the growth in demand for simulation as an educational approach to teach both the clinical and non-clinical competencies, the importance of debriefing in the learning process becomes paramount. However, medical educators are often thrust into the role of providing simulation-based training without proper training. Therefore we need to review current practices to ensure that our medical educators in the rural setting have the appropriate skills to deliver effective simulation-based education.

The Western Australian Country Health Service (WACHS) is the largest country health service in Australia and one of the most vast in the world, delivering a range of comprehensive health services to more than 541,000 people, including over 47,000 Aboriginal people, covering an extensive 2.5 million square kilometre area.\(^4\) With a highly transient population of tourists that travel throughout the seven regions there is no such thing as a ‘typical patient’ in the rural clinical setting; instead healthcare providers are exposed to a breadth of clinical presentations and experiences.\(^4\) To ensure the training needs of those working across the health service in Western Australia are met, a model consisting of hospital-based regional
educators with central coordination and support, along with a shared system for
the use of equipment to maximize use and minimize disruption of education
programs was implemented. Each region has the ability to adapt the model to meet
their individual needs based on staff and patient populations.

1.3 Rationale for Research
The research background highlights the need to review current practices to ensure
that medical educators in the rural setting have the appropriate skills to deliver
effective simulation-based education, particularly around debriefing. The purpose
of the research was to establish current practice and identify aspects of debriefing
that are unique to the rural environment. The findings are not generalizable to the
broader medical education population.

1.4 Structure of Thesis
A review of the literature relevant to the research is presented in Chapter 2,
establishing the current knowledge in the area of debriefing in simulation-based
medical education. Chapter 3 describes the methods used to collect and analyse
research data to address the study’s aims, as well as the ethical aspects as related
to this study. The results of the data analysis are presented in Chapter 4 for both
phases of the study. As the study design was explanatory sequential mixed
methods, the results are presented in sequence. In the first section, results from
the phase the electronic survey are reported. Following this, the findings from the
phase two interviews are reported. The two phases are linked at the point of
analysis, whereby the data from the electronic survey and the Debriefing
Assessment for Simulation in Healthcare (DASH)\textsuperscript{6} tool were used to help develop
semi-structured questions. The data gathered from the semi-structured interviews
were then used to aid in the analysis and to build a picture of the practices
observed. Finally Chapter 5 summarises the research undertaken, discusses the
findings and limitations of the research, and the impact this has on the research
outcomes. The research questions are answered and recommendations are made.
2 LITERATURE REVIEW

2.1 Introduction
McGaghie, Issenberg, Petrusa and Scalese\(^7\) state that the “effectiveness of simulation-based medical education (SBME) and the role of the instructor in facilitating, guiding and motivating learners is shrouded in mystery”\(^7(p59)\). This chapter describes a review of the literature pertaining to simulation in healthcare. The key purpose of this review is to examine and critically review the existing body of knowledge, identify knowledge gaps and establish the concepts to be considered further within this study in an attempt to reveal the ‘mystery’ referred to by McGaghie et al.

2.2 Search Strategy
The search for appropriate literature was guided by the following question: what is the evidence relating to the use of debriefing in simulation based medical education? A comprehensive literature search was conducted using Medline, Cumulative Index of Nursing and Allied Health Literature (CINAHL), ProQuest Health and Medicine, ProQuest Nursing and Allied Health, and PsycINFO utilising the following key words: “simulation”, “clinical simulation”, “simulation theory”, “medical education”, “rural health”, “rural medical educators”, “health educators”, “simulation instructor training”, “debrief*”, and “adult learning and simulation”. The search strategy was conducted twice over the 18-month period of this study to ensure currency of evidence. Papers were excluded if they were not accessible in English.

2.3 Literature Review Structure
This review presents the literature relevant firstly to the use of simulation in healthcare, then to the educational theory related to simulation. The literature on the phases of simulation will be outlined and finally that related specifically to debriefing simulation activities is reviewed.
2.4 Simulation in Healthcare

In 2004 Gaba \(^8\) presented a definition for simulation within the healthcare setting that has been adopted by many authors over the years. He defines simulation as “a technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion”\(^8(p2)\). In 2013 the International Nursing Association for Clinical Simulation and Learning (INACSL) defined simulation as “a pedagogy using one or more typologies to promote, improve, or validate a participant’s progression from novice to expert”\(^9(p59)\), a definition that has been embraced by many in the nursing arena. In an attempt to provide an internationally accepted definition, that encompasses simulation across all healthcare applications, the Society for Simulation in Healthcare has recently released its definition stating that simulation is “A technique that creates a situation or environment to allow persons to experience a representation of a real event for the purpose of practice, learning, evaluation, testing, or to gain understanding of systems or human actions”\(^10(p33)\). It is this definition by the Society for Simulation in Healthcare that reflects this researcher’s stance on simulation in healthcare.

Despite what appears to be a recent surge in the use of simulation-based education (SBE) in medical education, it is certainly not a new educational approach. The use of SBE dates back centuries, with reference to the use of models to teach anatomy, to the introduction of an obstetric simulation program introduced in France in the 19\(^{th}\) century to address issues related to patient safety \(^11-13\). Forty years ago standardised patients were introduced to train medical students doctor-patient communication skills \(^14\). The 1960s also saw the development and introduction of patient simulators such as ‘Resusci-Anne’, ‘Sim One’ and ‘Harvey’. The aim of these early simulators was skill acquisition and mastery of complex tasks.

Medical education has traditionally relied on the apprenticeship model, with novice practitioners training with real patients, in actual clinical settings, a model that has provided extensive hands-on experience for many decades \(^15\). There has been a shift
over the last decade with an exponential rise in the application of simulation, which Levine, DeMaria, Schwartz and Sim\textsuperscript{16(p3)} describe as moving from the “best secret to best practice”. Seropian, Brown, Gavilanes and Driggers\textsuperscript{17} attribute this growth in SBE to the decreasing cost of simulation equipment; increasing awareness of the need to address patient safety; and the ability of simulation to enhance clinical practice.

With patient safety seen as the overriding focus of medical education, SBE is an educational approach that allows the learner to improve, consolidate and put into practice his/her skills and knowledge in an environment that is both immersive and realistic, and safe to both the learner and patients\textsuperscript{18}. Lateef\textsuperscript{19} suggests that the educational benefits of simulation in medical education include (a) deliberate practice with feedback, (b) exposure to uncommon events, (c) reproducibility, (d) opportunity for assessment of learners, and (e) the absence of risk to patients.

### 2.5 Educational Theory

It is evident from the literature that in terms of patient safety, SBE provides a safe learning environment for both the learner and the patient. From an educational theory perspective, there is a large body of literature that suggests that simulation is effective as a learning tool as it engages learners, encourages active learning, allows for varied learning styles, promotes reflection and facilitates collaborative learning\textsuperscript{20-22}. Along with the principles of adult learning outlined by Malcolm Knowles in the 1970s, experiential learning theory (ELT) is often cited in the simulation literature as the theory that underpins the principles of simulation-based learning, as it provides the learner with ‘hands-on’ experiences that imprints knowledge more readily than didactic or online activities alone\textsuperscript{15,20,23-26}.

The concept of experiential learning has a long history, with Confucius, China’s most famous teacher, philosopher and political theorist quoted as saying “I hear, I know. I see, I remember. I do, I understand”\textsuperscript{27}. Drawing on the work of prominent scholars such as John Dewey, Kurt Lewin, Jean Piaget and Lev Vygotsky, ELT provides a
comprehensive framework to assist educators in the design of their learning activities. Kolb in his work on ELT defines learning as “the process whereby knowledge is created through the transformation of experience.” Kolb goes on to say that “knowledge results from the combination of grasping and transforming experience.” Grasping experience equates to the process of absorbing information, and transforming experience refers to how individuals interpret and act on the information. The ELT model as can be seen in Figure 1, portrays four modes of learning, two modes of grasping experience – concrete experience (CE) and abstract conceptualisation (AC), and two modes of transforming experience – reflective observation (RO) and active experimentation (AE). Kolb, Kolb, Passarelli and Sharma suggest that learning occurs when the learner has the opportunity to engage with each with mode.

Poore, Cullen and Schaar operationalised Kolb’s ELT for SBE as illustrated by the green text in Figure 1. With the concrete experience equating to an experience in a simulated learning environment, reflective observations and abstract conceptualisation modes of learning address in the debrief, the cycle continues to active experimentation occurring when the learner applies the knowledge learner either in a repeat simulation or on return to the clinical environment.
2.6 Components of Simulation-Based Education

The components that go into developing and delivering SBE have been well documented 30-33. Authors differ on the number of components that are required, ranging from as few as three components as described by Barach, Satish and Streufert 32, through the seven components described by Dieckmann, Friis, Lippert and Østergaard 33. Despite this variation in the number of components, there are some common descriptors found in the literature including an introduction, orientation to the environment, the simulation scenario, and a debrief.

The model described by Dieckmann, Friis, Lippert and Østergaard 33 is certainly the most comprehensive found in the literature, providing a complete overview of all possible components of a simulation event. The authors highlight that the model, as seen in Figure 2, is generic enough to be applicable across all health disciplines, and that the order and number of components adopted by educators will vary depending on a number of variables such as the number of learners and the time allocated for the activity. The arrow in Figure 2 is present to indicate that the various components may influence each other, the example given “the attitude
displayed in the setting introduction may influence how openly and actively
participants reflect during the debriefing.

It also indicates a scaffolding of learning and progression through the event. Each
section acts as a building block and is instrumental to the understanding of the
participant and his/her ability to be immersed and function appropriately in the
activity that follows, culminating in debriefing of the case. Although linear in nature
Diekmann’s model has a definite introduction and ending, however, the scenario
briefing through to debriefing are cyclical in nature and may be repeated a number
of times depending on the number of clinical scenarios being conducted. This is one
of the strengths of this model as it is well structured in its sequence but provides
ample opportunity for the facilitator to repeat the experiential learning process
before progressing to the end of the sequence.

Figure 2: A model of the simulation setting.
Adapted from Dieckmann, Friis, Lippert and Østergaard 33

![Diagram](image)

Jolly, Nestel and Sprick 34 outlined the six components that they believe educators
should consider when designing, delivering and reviewing simulation-based learning
(Figure 3). The authors suggest that each component or phase is integral to the
educator achieving the learning outcomes, although many authors suggest that the
The debriefing component of SBE has been referred to in the literature as being the “heart and soul” of the simulation event \(^{42}(p124)\). Authors from across a plethora of industries such as health, aviation, defence and academia, have identified the debrief component as being of critical importance \(^{7,21,31,32,42-46}\). Although much importance has been place on the debriefing component several authors have noted that there are few studies published on how best to structure and run an effective debrief \(^{7,38,43}\). Cantrell \(^{44}\) argues that the reason the literature “has ignored the importance of debriefing and reflection” is due to the fact that the focus has been on “developing best practices in developing and implementing clinical
Given that so much importance has been placed on the debrief, the literature specific to this component will be discussed in-depth.

2.7 Debriefing

When reviewing the definition of debriefing in the literature, Lederman \(^{47}\) highlights the fact that depending on the context in which the debrief is referred, the definition will vary. A debrief has been defined as “learning through reflection on a simulation experience”; “emotional recovery from critical incidents”; and “work-related tasks, such as appraisal and synthesis of input from focus groups”\(^{47}(p147)\). When referring to debriefing in the context of SBE in healthcare Flanagan \(^{31}\) defines debriefing in SBE as “the purposeful, structure period of reflection, discussion and feedback undertaken by students and teachers usually immediately after a scenario-based simulation exercise involving standardised patients and/or mannequins”\(^{31}(p155)\). Fanning and Gaba \(^{42}\) propose a similar definition stating “debriefing represents facilitated or guided reflection in the cycle of experiential learning”\(^{42}(p116)\). These definitions all focus on the period of reflection after the event and the discussion associated with describing the actions associated with the event but also considering the reasons as to why actions may have occurred and providing feedback on future encounters.

2.7.1 Origins

The origin of debriefing lies in the military, and was a term used to describe the process whereby individuals were brought together following a military exercise to recount the events and develop strategies for future missions \(^{42,47}\). As well as this ‘strategic action’ form of debrief, the military has used debriefing in more recent times with a more psychological and therapeutic focus as the process for aiding service men and women who have experienced a traumatic event \(^{42}\).

In the early 1990s the use of debriefing in the post critical incident phase was emerging. This psychological approach to debriefing was aimed at assisting those
involved “in the cognitive and emotional processing of what they had experienced”\textsuperscript{42(p116)}. The literature also suggests that this form of psychological debriefing has its origins in the area of experimental psychology with the purpose of reversing any negative effects experienced by research subjects, particularly in studies where deception of subjects occurred \textsuperscript{47}.

Debriefing also has its origins in the education arena. Building on the use of debriefing in the military and the field of psychology, educational debriefing is used as part of the experience-based learning process, for the purpose of assisting the learner process the information gained and provide insight into the activity in an attempt to help them learn from the experience \textsuperscript{47}.

2.7.2 Elements

The elements that come together to create a debrief are not overtly stated in much of the SBE literature, however, the work by Lederman \textsuperscript{47}, who outlined seven elements common to all debriefing, is referenced consistently in recent literature \textsuperscript{31,33,42,46,48}. Table 1 lists the seven elements described by Lederman.

<table>
<thead>
<tr>
<th>Elements of the Debrief</th>
</tr>
</thead>
<tbody>
<tr>
<td>The debriefer (or guide)</td>
</tr>
<tr>
<td>The participants</td>
</tr>
<tr>
<td>The experience</td>
</tr>
<tr>
<td>The impact of the experience</td>
</tr>
<tr>
<td>The recollection of the experience</td>
</tr>
<tr>
<td>The mechanism for reporting on the experience</td>
</tr>
<tr>
<td>The time to process it</td>
</tr>
</tbody>
</table>

Perhaps the aspects missing from this list of elements are associated with the rationale as to how the experience unfolds and why participants have interacted
with each other and the environment in particular ways. This would move beyond a
reporting of events and the potential impact of an event to a more purposeful
position of developing an understanding of why events occur and the decision
making and reasoning behind participants interaction in the event.

As the debriefer is the element of interest in this study, the literature pertaining to
this will be explored further.

2.7.3 Method

Decker, Fey, Sideras, Caballero, Rockstraw, Boese in Simulation Standard VI (the
debriefing process) of the International Nursing Association for Clinical Simulation
and Learning Standards of Best Practice, profess the view that one of the five
criteria for achieving effective debriefing is the use of a “structured framework for
debriefing”49(p528). In advocating for the use of a structured framework for
debriefing however, it is noted that no such framework is referenced. Jolly, Nestel
and Sprick present numerous models and approaches available to the debriefer
including Pendleton’s model, the chronological review, Calgary-Cambridge
Observation Guide, SET-GO, Advocacy-Inquiry and the SHARP model. The authors
do not support one model over another, advocating only that the debriefer adopt a
model to fit their preferred style. There are other methods such as the Plus Delta
Model, WISER GAS Model and the PEARL method, which are often espoused as
being appropriate methods to adopt in the debriefing process34,50-52. Systematic
reviews conducted by Levett-Jones and Lapkin, and Dufrene and Young concluded
that regardless of the method used, debriefing contributed to effective
learning.

The central theme of the debriefing models articulated in the literature is reflection,
specifically the learners’ reflection on the experience. The processes outlined in the
different debriefing models are described and categorized differently, however they
can be summarized into three phases, a reactions phase; an analysis phase; and a
summary phase. There is variation between many of the models used in debriefing and mode and purpose of reflection within each model. Some models focus more on feedback and identifying positive and negative aspects of the behaviours, skills and attitudes exhibited in the event. Others will require the participant to reflect more upon the reasoning that has led up to the behaviours, skills and attitudes exhibited during an event.

The elements presented do not offer a rationale as to which model would be most useful in which circumstance for the debriefer to adopt and why they are of benefit from an educational perspective, which is a weakness of the research.

2.7.3.1 Reactions phase

It is frequently noted in the literature that the aim of the initial reactions phase is to illicit the impact of the experience on the learner. Lederman suggests that this initial phase is when the learner is introduced to the process of self-reflection related to the experience just encountered, and involves “a recollection of what happened and description of what participants did in their own words”.

This is supported by Rudolph, Simon, Raemer and Eppich who report that the main aim of the reactions phase is to allow trainees to express their initial emotional reactions to the simulation. Where the authors differ is in relation to who summarises the fact of the event, with Lederman advocating for the learner and Rudolph et al. asserting this is the role of the instructor. It is stated by Rudolph et al. that once the initial emotional outlaying takes place, the debriefer may then recap or summarise the context of the simulation and outline briefly the events as they occurred. The authors’ rationale for a debriefer led summary of events may be that they often recommend the debriefer addresses the ‘elephant in the room’ in this phase if the debriefer feels there is an important issue to discuss from either an emotional or factual perspective. The rationale given for this role being undertaken by the debriefer is so that the “trainees are not confused about what happened”.

22
Whilst Rudolph, Simon, Raemer and Eppich\textsuperscript{55} advocate for allowing the learners to express their emotional reactions before the description of events, Petranek\textsuperscript{54} and Lederman\textsuperscript{47} recommend discussing facts followed by emotions. Despite the order in which the debriefer addresses these components Rudolph, Simon, Raemer and Eppich\textsuperscript{55} affirm that the reactions phase provides the debriefer with insight into stimulating or concerning issues experienced by the learner and that “following the tenets of adult learning theory, the instructor should weave one or two of these learner-centred topics into later conversation or address them directly”\textsuperscript{55(p1013)}.

2.7.3.2 Analysis Phase

With an understanding of the facts and the impact of the experience on the learner, the debriefer facilitates a discussion that explores not only what was done, but delves deeper to unearth why a participant has navigated his/her way through the simulation the way s/he has\textsuperscript{31,38,42-48}.

Petranek\textsuperscript{54(p519)} developed the “Six Es of Debriefing: events, emotions, empathy, explanations, everyday, and employment”. With events and emotions addressed in the first reactions phase, the author suggests addressing empathy by encouraging the learners to see the experience from another’s point of view, giving insight or explanation into what may have motivated the individual’s behavior.

In the three phase debriefing process described by Lederman\textsuperscript{47}, phase two and three both have components of analysis, one with the purpose described as “intensification and personalization” and the other “generalisation and application”\textsuperscript{47(p152)}, with intensification and personalization described as “the refocusing of participants reflections on their own individual experiences and the meanings they have for them”\textsuperscript{47(p152)}. Whereas Petranek argues that the analysis phase is focused on directing the learner to analyse the experience from another’s point of view, Lederman professes personalization in the analysis by the learner\textsuperscript{47,54}.  

23
Rudolph, Simon, Raemer and Eppich\textsuperscript{55} have been explicit in their description of the analysis phase, acknowledging the view that it underpins formative assessment. The authors suggest that in line with formative assessment, the analysis phase involves linkage to the learner’s real-world context through the use of four steps (1) observe the gap between desired performance and actual performance; (2) provide feedback about the performance gap; (3) investigate the basis for the performance gap; and (4) help close the gap through discussion.

The literature provides sound explanations as to the purpose of the analysis phase ranging from the personalization to generalization of the event. The literature is consistent in suggesting that the aim of this phase is to assist the learner in exploring his/her perspective and assisting in supporting individuals and groups of learners in moving to new perspectives of understanding. The literature could have provided a more robust perspective from the learners as to how beneficial they found this and whether it was explicit enough for them to make the connection to apply the lessons learnt to their own clinical work context.

2.7.3.3 \textit{Summary Phase}

In line with the abstract conceptualisation element of experiential learning theory the final phase of the debrief focuses on taking the learning from the simulated environment and applying it in the real world\textsuperscript{42,54,55}. Through the debriefer posing questions to the learner about the correlation between the simulation and the real-world\textsuperscript{54}, and assisting the learner to explore his/her knowledge gained from the experience\textsuperscript{47}, the learner will be able to apply the knowledge to improve his/her future practice\textsuperscript{55}. Lederman\textsuperscript{56} asserts that if a connection to real-world application is not made then “the activity loses its meaning and becomes simply a game”\textsuperscript{56(p426)}.

Research focusing on the structures of the debriefing process often provides significant information as to the phases and what should be in those phases. Research that discusses the application of these phases is important and would assist practical debriefers in understanding that the debriefing process is a fluid
activity which requires a skilled debriefer to move through the process at varying rates and move back and forth depending on the learner’s needs.

2.8 The Debriefer

The literature suggests that many doctors find themselves being ‘volunteered’ into the role of medical educator, a task in which they often reluctantly engage. DeWitt suggests, however, that once they are ‘on board’ as medical educators, their intimate knowledge of the patient and the learner enable them to deliver targeted education. For many educators working in healthcare their knowledge around teaching and learning theories is often limited, as it is their clinical expertise that frequently leads to the allocation of teaching roles. This issue has been acknowledged at a national level with Health Workforce Australia funding a national education program for healthcare educators focused specifically on simulation.

The literature is sparse in relation to the profile of the debriefer. A report from 2010 commissioned by the Department of Health Victoria indicates that, within Victoria, the predominant discipline employed to run and deliver simulation and training is nursing, followed by medicine. McGaghie, Issenberg, Petrusa and Scalese in their review of the literature concluded that there are many aspects of the role of the instructor and their practice that is yet to be understood.

2.9 Conclusion

This chapter has reviewed the literature related to the use of simulation in healthcare and the educational theory that underpins its practice. The literature on the phases of simulation was examined, along with an in-depth analysis of the debriefing phase in its entirety. Whilst there is a substantial body of evidence addressing the importance of the debriefing phase; significant gaps have been identified. Literature referencing simulation and debriefing from a rural perspective elicited limited results.
The limited number of research articles related to the practices of the debriefer assists in identifying the need to undertake further research in this area, particularly due to the paucity of work directly focusing on rural settings. The current research, therefore, seeks to better understand the debriefing practices of medical educators, particularly from a rural perspective.
3 METHODOLOGY

3.1 Introduction
The previous chapters of this thesis have emphasised important gaps in our understanding of the debriefing practices of medical educators, particularly from a rural perspective. This chapter describes the methods used to collect and analyse research data to address the study’s aims. This chapter is structured to have six separate sections. Firstly the research questions are presented, followed by the study design. The data collection methods and tools implemented are presented and the methods used for data analysis are described. The final section will address the ethical aspects as related to this study.

3.2 Research Questions
The aim of this study was to explore the current practices of the simulation debriefing activities conducted by medical educators working in rural hospitals in Western Australia. The following research questions guided data collection of the debriefing practices of rural medical educators.

- How are debriefing sessions conducted in rural hospitals?
- How do the medical educators perceive they are delivering debriefing activities?
- How do the learners perceive that they are receiving debriefing activities?
- What demographic and training related factors may be associated with effective debriefing?
- What do medical educators see as essential for an effective debrief?
- What education or training do medical educators receive in preparation for debriefing?
- What is the impact of ineffective debriefing on achievement of the stated learning objectives?

3.3 Study Design
This study utilised a mixed methods design in order to address the research aim and to better understand the research questions. The term ‘mixed methods’ has been
defined as a process for collecting, analysing and mixing both quantitative and qualitative data within a single study. The reason for implementing a mixed methods approach was the need for both quantitative and qualitative methods to fully explore ‘what’ debriefing practices were occurring in the rural setting. Quantitative methods were used to describe ‘who’ were debriefing and any relationship between age, gender, location and training. The qualitative methods were then used to explore ‘how’ and ‘why’ these relationships might affect the debriefing. By adopting a mix of quantitative and qualitative methods, a more comprehensive understanding of the research topic could be achieved than through using either method in isolation.

There are numerous approaches outlined in the literature of combining quantitative and qualitative in a mixed method research design. This study followed a sequential explanatory mixed methods design as the design best suited to meet the research aims. Creswell and Plano-Clark describe sequential explanatory design as one where the research begins with a quantitative phase (electronic surveys and DASH Tool) and follows with a qualitative phase (one to one Interviews), the purpose of the qualitative phase being to explain the significance of the quantitative data (see Figure 4). Priority was given to the qualitative component of the study (i.e., quan → QUAL).

With the establishment of mixed methods research, Hall suggests that this development was accompanied by “a search for an appropriate paradigm to
provide a legitimation for the use of mixed methods” \(^{65}(p1)\). Of the four worldviews or paradigms, (1) postpositivism, (2) constructivism, (3) transformative, and (4) pragmatism, Hall \(^{65}\) suggests that only transformative and pragmatism paradigms are seen to be compatible with mixed methods research, with postpositivism closely aligned with quantitative research and constructivism with qualitative research.

Morgan \(^{66}\) builds on existing literature around the use of a pragmatic approach to the social sciences, offering a framework that highlights the differences between qualitative and quantitative research, and how pragmatism can address these differences (Table 2). The framework suggests that taking a pragmatic approach allows the researcher to move back and forth between induction and deduction, adopting a process of abduction, which is in line with a sequential explanatory mixed methods design. Morgan argues that, in reference to the relationship the researcher has to the research process, achieving complete subjectivity or objectivity is difficult to achieve and that a pragmatic approach offers the researcher an intersubjective approach to the research process. Finally the framework addresses the idea that the knowledge gained is either contextual or generalizable. Morgan advocates for the idea of transferability, that “we always need to ask how much our existing knowledge might be usable in a new set of circumstances” \(^{66}(p72)\). It is based on these concepts that this study is underpinned by pragmatism whilst recognising the values of constructivism.

<table>
<thead>
<tr>
<th>Table 2: A Pragmatic Alternative to the Key Issues in Social Science Research Methodology (Morgan (^{66}(p71)))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connection of theory and data</strong></td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Inductive</td>
</tr>
<tr>
<td><strong>Relationship to research process</strong></td>
</tr>
<tr>
<td><strong>Inference from data</strong></td>
</tr>
</tbody>
</table>
3.4 Ethical Approval

Ethical approval was granted from the University of Western Australia Human Research Ethics Committees, reference number RA/4/1/7102. For data to be collected within regional hospitals approval was also granted by the Western Australian Country Health Services Human Research Ethics Committees (reference number 2014:22), and the Kimberley Aboriginal Health Planning Forum Research Subcommittee (reference Project 2014-015), a requirement for any research data collected in the Kimberley region of Western Australia.

To comply with data storage requirements all hard copy data collected throughout the research period were stored within a locked cupboard in the researcher’s office and accessible only to the researcher and researcher’s supervisors. All data, both hard and electronic versions, have been copied, backed up, password protected and will be retained for a minimum of seven years following the completion of the research or publication (whichever is later) on the secure UWA server.

3.5 Participants

Two groups of participants were recruited to this study: debriefers and learners.

3.5.1 Group 1: Debriefers

The target population for this study was medical educators employed by the Western Australian Country Health Service (WACHS), who provide simulation based training. There are many healthcare professionals that have an education portfolio, however as the focus of this study was rural medical educators, only educators from the medical profession were invited to participate. The Postgraduate Medical Education Unit at WACHS coordinates an email database of medical educators, giving an estimated population size of 30. Characteristics such as age, gender and simulation experience were unknown. The term debriefer is used to categorise this group of participants.
3.5.1.1 *Debriefer Recruitment and Consent*

Participants were recruited from a WACHS email database of medical educators working rurally. Initial email invitation was sent on Wednesday 24\textsuperscript{th} December 2014, immediately after ethics approval was obtained (Appendix A). Anecdotal evidence suggests that during this time many staff were taking leave for the Christmas period. The first reminder email was sent on the 27\textsuperscript{th} January 2015, to coincide with the end of the school holiday period, with a final reminder sent two weeks later. A total of 21 responses were received to the survey.

The survey concluded with an invitation to participate in further research of their debriefing practice through direct observation, rating of debrief sessions against a behaviour marker tool, and one-to-one semi-structured interviews. Ten of the 21 respondents consented to participate in the subsequent phase of the study and were sent an email requesting information on the dates of planned simulation activity. To be eligible for selection in this study the participants must have: (1) delivered medical education for WACHS staff at either, Broome Hospital, Hedland Hospital, Bunbury Hospital, Geraldton Hospital, Kalgoorlie Hospital, or Albany Hospital; and (2) planned to deliver simulation based training at least once between 01 February and 31 May 2015. A purposive sample of six participants was selected as determined by three factors: the scheduling of simulation activities, regional spread and study timeline.

The literature suggests that in mixed methods studies, the quantitative sample size may be larger than the qualitative sample. Additionally in sequential explanatory design it is important that those in the second phase also participated in the first phase Creswell and Plano-Clark\textsuperscript{64}.

Informed consent was gained at two points in the study, firstly prior to the quantitative phase and again prior to the qualitative phase. See Appendix B and C for the participant information letter and participant consent form.
3.5.2 Group 2: Learners

The six debriefing activities that formed part of the study were delivered by group 1 debriefers to WACHS staff from the disciplines of both nursing and medicine. Thirty seven staff attended across the six debriefing sessions. The term learner is used to categorise this group of participants.

3.5.2.1 Learner Recruitment and Consent

Learners attending one of the six selected simulation based activities were invited by the researcher at the commencement of the simulation based training session to participate in this study. All 37 learners consented to participate in the study. All participants were asked to rate the debrief using the DASH tool immediately after the activity. A question at the end of the tool was included inviting the learners to opt-in to the qualitative component of undertaking a one-to-one semi-structured interview. Four learners agreed to participate.

3.6 Data Collection Methods

An electronic survey was chosen as the data collection method used in phase one (quantitative phase). The choice of data collection methods in phase two (qualitative phase), as shown in Figure 5, complemented that used in the previous phase, therefore building a greater depth and understanding of the research topic.
The tools and processes implemented to collect data are described per phase.

3.6.1 Phase 1 - Quantitative

3.6.1.1 Survey

The purpose of the survey used in this study was to gather quantitative information about the characteristics of the medical educators working in rural Western Australia. An online survey was chosen as the research method to collect these data.

Creswell and Plano-Clark \(^{64}\), define a survey as “a written list of questions, the answers to which are recorded by respondents\(^{6} \) (p126). Surveys can be effective when the geographical distribution of the study population is scattered over a vast geographical area\(^{67}\), such as with the population in this study. The use of an online
survey was chosen over a postal survey as the advantages include being inexpensive, provided the opportunity for faster response times, and fewer unanswered questions with the opportunity to enforce responses to questions.

Whilst it is acknowledged that online surveys have certain disadvantages such as low response rates, the researcher was able overcome this by engaging with local executive sponsors at the sites to advertise and promote participation. Kumar states that researchers “should consider yourself lucky to obtain a 50% response rate.” A response rate of 70% was achieved in this study.

The survey was designed to collect basic demographic data about the respondent, along with information regarding his/her medical training and use of simulation-based training. Along with Likert scales where respondents were asked to rate the importance of debriefing, respondents were also asked an open-ended question to define simulation-based training. Respondents were also asked to include their contact details if they were interested in attending follow-up semi-structured interviews.

The survey underwent several iterations, with each question thoroughly reviewed by the researcher’s supervisors, for ambiguity, answerability and relevance to the research aims. The survey was then created using Qualtrics, an online program that assists users to create, distribute and analyses survey responses. A URL link to the survey was included in the invitation email to respondents (see Appendix A), allowing the respondents to click on the link and complete the survey. Completion of the survey was voluntary and concluded with an invitation to participate in observation and rating of a simulation debriefing activity, followed by one-to-one semi structured interviews.

3.6.1.2 Debriefing Assessment for Simulation in Healthcare

With the aim of the study being to explore the current practices of the simulation debriefing activities conducted by medical educators working in rural hospitals in Western Australia, an overview of the effectiveness of the debriefing activities was
required. There are several tools utilised internationally to evaluate the effectiveness of debriefing in SBE \textsuperscript{69}. The DASH tool was selected as the researcher had previous experience with utilising the tool, and had undergone rater training with the Center for Medical Simulation, Boston Massachusetts, who published the tool \textsuperscript{6}. A study by Brett-Fleegler et al. showed evidence of reliability and preliminary evidence of validity \textsuperscript{70}. The DASH tool evaluates the effectiveness of the debriefer to facilitate a debrief by examining concrete behaviours. Using a 6-element, unweighted, criterion referenced behaviourally anchored rating scale as outlined in Table 3, the DASH is based on evidence and theory about how people learn and change in experiential contexts \textsuperscript{6}. Elements are rated based on a 7-point effectiveness scale, from a rating of 1 being extremely ineffective, to 7 being extremely effective.

Three different versions of the tool (rater version, instructor version and student version \textsuperscript{6,71}) were used to rate the effectiveness for the debrief from the perspective of:

1. The learner (group 2)
2. The debriefer (group 1)
3. The researcher

The aim of collecting rating data from three different perspectives was to increase the rigour of the findings through triangulation of the data.

Completion of the DASH tool was done immediately after the debrief activity for both the learner and debriefer groups, with the researcher completing the tool within seven days of the debrief occurring, utilising a video recording of the debrief as a reference point. The researcher was unaware of either group’s ratings on the DASH prior to completing the task.
Table 3: DASH Elements and Dimensions

<table>
<thead>
<tr>
<th>DASH ELEMENT</th>
<th>ELEMENT DIMENSION</th>
</tr>
</thead>
</table>
| 1. Establishes an engaging learning environment | • Clarifies course objectives, environment, confidentiality, role and expectations  
• Establishes a “fiction contract” with participants  
• Attends to logistic details  
• Conveys a commitment to respecting learners and understanding their perspective |
| 2. Maintains an engaging learning environment | • Clarifies debriefing objectives, roles and expectations  
• Helps participants engage in a limited-realism context  
• Conveys respect for learners and concern for the psychological safety |
| 3. Structures the debrief in an organised way | • Encourages trainees to express their reactions and, if needed, orients them to what happened in the simulation, near the beginning  
• Guided analysis of the trainees’ performance during the middle of the session  
• Collaborates with participants to summarize learning from the session near the end |
| 4. Provokes engaging discussion | • Uses concrete examples and outcomes as the basis for inquiry and discussion  
• Reveals own reasoning and judgments  
• Facilitates discussion through verbal and non-verbal techniques  
• Uses video, replay, and review devices (if available)  
• Recognizes and manages the upset participant |
| 5. Identifies and explores performance gaps | • Provides feedback on performance  
• Explores the source of the performance gap |
| 6. Helps trainees achieve or sustain good future performance | • Helps close the performance gap through discussion and teaching  
• Demonstrates firm grasp of the subject  
• Meets the important objectives of the session |

3.6.2 Phase 2 - Qualitative

3.6.2.1 Semi-structured interviews

Semi-structured interviews are a direct, efficient and practical method of collecting qualitative data 72-74. Using semi-structured interviews as a data collection method allows for further explanation and exploration of the data collected in the quantitative phase.
Interviews were conducted with six participants from group 1 (debriefers), along with four participants from group 2 (learners). Interviews were scheduled at a time that was convenient for the participants, with the majority of interviews occurring within 7-10 days following the debrief. Interviews were recorded on a digital recorder and audio files saved and transcribed verbatim. The interviews lasted between 20-30 minutes for each participant, and were conducted via telephone.

3.7 Analysis

Mixed method research involves both quantitative and qualitative data sets that require each data set to be analysed using the appropriate method of analysis.\(^{64,75}\)

3.7.1 Quantitative data analysis

Once the online survey was closed, all data were exported into the software program Statistical Package for the Social Sciences V22 (SPSS). Descriptive statistics including mean and frequency were calculated to provide an overview of the demographics of the debriefers. Data from the DASH tool were analyzed using SPSS with the results of the groups compared using non-parametric analysis, specifically the Kruskal Wallis H test, with post hoc Mann Whitney U test. Non-parametric analysis was performed as the assumptions for parametric tests, normality and homogeneity of variance, were not met. Field\(^ {76, p540}\) describes non-parametric tests as “assumption-free tests” due to the fact that “they make fewer assumptions about the type of data on which they can be used”. The Kruskal Wallis test is used to compare three or more independent samples of ordinal (ranked) data simultaneously.\(^ {76}\) As the Kruskal Wallis test only identifies that there is a difference amongst the groups, post-hoc tests are needed to investigate where the differences between the group means occurred.\(^ {77,78}\)

3.7.2 Qualitative data analysis

The method of analysis for the qualitative interview data was thematic analysis. Thematic analysis is a process of identifying, analysing and reporting themes or
patterns within the data. NVivo, a qualitative software package, was used for data storage, retrieval and interrogation.

Braun and Clarke describe a six phase approach to thematic analysis which the researcher followed (Table 4). In the first phase the individual audio recordings were transcribed verbatim into NVivo, read and re-read a number of times so that the researcher became familiar with the data, noting initial ideas. The data was coded in NVivo, generating initial codes to which data was collated under. The codes where mapped creating potential themes, which were checked against the extracted codes across the data set. Data was reviewed to search for any additional themes, with the on-going analysis refining the themes, generating the name and definition for each theme.

The final themes are summarised and reported in Chapter 4.

<table>
<thead>
<tr>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Familiarising yourself with your data</td>
</tr>
<tr>
<td>2. Generating initial codes</td>
</tr>
<tr>
<td>3. Search for themes</td>
</tr>
<tr>
<td>4. Reviewing themes</td>
</tr>
<tr>
<td>5. Defining and naming themes</td>
</tr>
<tr>
<td>6. Producing the report</td>
</tr>
</tbody>
</table>

When analysing the qualitative data there is a risk that the researchers own bias, preconceived ideas or beliefs may prevent full understanding of the phenomena being studied. Throughout the life of this research the researcher remained aware of her own bias by keeping a journal, and made every effort not to let her own views and opinions stand in the way of objective analysis. This process of reflexivity is defined by Finlay “as a thoughtful, conscious self-awareness”.

3.8 Summary

This chapter discussed the methodology adopted for this study into the debriefing practices of rural medical educators. Distribution of the survey tools, data analysis
utilising a mixed methods approach and the ethical considerations of this study were discussed.
4 RESULTS

4.1 Introduction

In this chapter the results of the data analysis are presented for both phases of the study. As the study design was explanatory sequential mixed methods, the results are presented in sequence. In the first section, results from the phase one - the electronic survey will be reported. Following this, the findings from the phase two interviews will be reported. The two phases are linked at the point of phase one analysis, whereby the data from the electronic survey and the DASH tool was used to help develop semi-structured questions. The data gathered from the semi-structured interviews were then used aid in the analysis and to build a picture of the practices observed.

4.2 Phase One Results

4.2.1 Demographic data from electronic survey

The electronic survey was distributed to 30 medical educators. A total of 21 responses were received, a response rate of 70%.

4.2.1.1 Rural location

With 74 sites spread across 2.5 million km$^2$, Figure 6 demonstrates the geographical subdivision of WACHS into seven regions$^{83}$. Survey respondents represent all seven regions, with the highest number of responses coming from both the Kimberley and South West regions, as shown in Table 5. The data revealed that 14 (66.7%) respondents have been working at their current site for between one and five years.

<table>
<thead>
<tr>
<th>Table 5: Where are you currently working?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Kimberley</td>
</tr>
<tr>
<td>Pilbara</td>
</tr>
<tr>
<td>Midwest</td>
</tr>
<tr>
<td>Wheatbelt</td>
</tr>
<tr>
<td>Goldfields</td>
</tr>
<tr>
<td>South West</td>
</tr>
<tr>
<td>Great Southern</td>
</tr>
</tbody>
</table>
Figure 6: WA Country Health Service Catchment Areas
4.2.1.2 Gender and Age

Of the 21 respondents 23.8% (n=5) were female and 76.2% (n=16) were male. Table 6 shows the breakdown of gender across the regions. As summarised in Table 7, the majority of respondents were below 50 years of age, with 57.2% (n=12) of respondents in the 40 - 49 year age group.

Table 6: Gender per region

<table>
<thead>
<tr>
<th></th>
<th>Kimberley</th>
<th>Pilbara</th>
<th>Midwest</th>
<th>Wheatbelt</th>
<th>Goldfields</th>
<th>South West</th>
<th>Great Southern</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 7: Age ranges of respondents

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39 years</td>
<td>8</td>
<td>38.1%</td>
</tr>
<tr>
<td>40-49 years</td>
<td>12</td>
<td>57.2%</td>
</tr>
<tr>
<td>50-59 years</td>
<td>1</td>
<td>4.7%</td>
</tr>
<tr>
<td>60 and over</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21</td>
<td>100%</td>
</tr>
</tbody>
</table>
4.2.1.3 Medical Training

Fourteen of the respondents completed their pre-registration medical education in Australia, with seven graduating overseas. Figure 7 shows a breakdown of the countries of training. For those who were educated in Australia five grew up in a rural setting.

Figure 7: Country in which pre-registration medical education occurred

4.2.1.4 Classification and Clinical Area

Respondents were asked to select from a list of categories the employment classification that best described their current role. Options included:

- Registrar
- Consultant
- General Practitioner
- Director of Medical Education
- Other – please comment

Table 8 reflects the role classifications of the respondents, incorporating the free text responses given for “other”.

43
When asked to select the clinical area in which they work, 52.4% (n=11) selected Emergency Medicine, 19% (n=4) Anaesthetics, 4.8% (n=1) Medical, with 23.8% (n=5) selecting “other”. When asked to specify on the “other” category one respondent identified Intensive Care, with the other four respondents stating that they worked across multiple clinical areas.

Table 9: Clinical Area
4.2.1.5 Medical Educator Simulation Profile

4.2.1.5.1 Defining Simulation Based Training

Respondents were asked to provide qualitative responses to define simulation-based education (SBE). Analysis of the 21 responses showed that four common areas emerged when defining SBE, which are listed below:

- Safety
- Practical
- Skill development
- Feedback

Table 10: Definition of Simulation-based Education

<table>
<thead>
<tr>
<th>Examples of responses to the question “In your own words what is simulation based education?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is the opportunity to provide hands on training without harming patients.</td>
</tr>
<tr>
<td>Training that is safe, yet efficient, giving junior doctors the chance to put theory into practice.</td>
</tr>
<tr>
<td>Hands on training with simulated patient models or scenarios. The learning centres on the clinical encounter but with a substitute subject/patient. This allows learning to occur in a safe place for staff and for patients.</td>
</tr>
<tr>
<td>An opportunity to practice all aspects of clinical care including practical skills, communication and teamwork in a semi-artificial but realistic setting. The environment is safe and there are opportunities for feedback. The ultimate is to improve clinical performance</td>
</tr>
<tr>
<td>The delivery of experiential learning in a safe, simulated environment with predetermined &quot;rules&quot; and protocols.</td>
</tr>
<tr>
<td>Simulation is designed as a safe environment to evolve and explore learning, separate from the reap patient.</td>
</tr>
<tr>
<td>It allows practice of various critical care/ resuscitation scenarios in order to practice skills as well as review and improve teamwork. It is non-judgemental and safe</td>
</tr>
</tbody>
</table>

4.2.1.5.2 Simulation Instructor Training

Fourteen respondents identified that they had undergone some form of training on how to use SBE. Programs identified as having been completed include:

1. WACHS Simulation Instructor Workshop
2. Center for Medical Simulation Instructor Course
3. Laerdal Manikin Training
4. National Health Education and Training in Simulation (NHET-Sim)
5. AusSETT - The HWA funded simulation educator and technician/coordinator training program
6. Advanced Paediatric Life Support (APLS) Generic Instructors Course
4.2.1.5.3 Frequency of Delivery

In terms of frequency of use of SBE, the majority of participants (n=14) responded that they teach using simulation only once a month. Four respondents were using simulation once a fortnight, with two respondents using SBE once a week. One respondent identified s/he was only using simulation twice a year.

4.2.1.5.4 Teaching space

Across the rural locations the majority of SBE (n=15) is occurring in a dedicated teaching space. It is important to note that this is not specifically a dedicated simulation environment. Five respondents stated that SBE occurs insitu, that being simulation that takes place in the actual working environment, with one respondent stating that SBE occurs “where I can fit it in” and “depends on clinical needs”.

The six participants who agreed to have their debriefing activity observed as part of this study were from three different clinical sites and are represented as sites A, B and C. Figures 8, 9 and 10 below represent the different teaching spaces where both the simulation and debriefing components occur for these three sites.

**Figure 8: Site A Teaching/Debriefing Space**

![Simulation Space](image1)

![Debriefing Space](image2)
Figure 9: Site B Teaching/Debriefing Space

Figure 10: Site C Teaching/Debriefing Space
4.2.1.5.5 Rating the importance of debriefing

Respondents were asked to rate on a Likert Scale (0=lowest, 10=highest) how important the debriefing component of a simulation-based activity was in achieving the learning objectives. Table 11 highlights more than half of the participants rated the importance between 8 and 10.

Table 11: Respondents rating of the Importance of debriefing

<table>
<thead>
<tr>
<th>Importance</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>14.3</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>23.8</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>23.8</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>28.6</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4.2.2 Summation of DASH responses from debriefing activities

As discussed in Chapter 3, six debriefers were purposefully selected to participate in the next stage of the study, review of the debriefing activity. The DASH tool was implemented to rate the simulation debriefing activities. A total of 49 ratings occurred, of the six debriefings. Table 12 shows the breakdown of the rater groups as being: debriefers, simulation participants/learners and the researcher.

Table 12: Rater Groups

<table>
<thead>
<tr>
<th>Rater Groups</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debriefer</td>
<td>6</td>
<td>12.2</td>
</tr>
<tr>
<td>Participant/Learner</td>
<td>37</td>
<td>75.5</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>12.2</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>100.0</td>
</tr>
</tbody>
</table>
After ranking the original DASH scores for each element, a Kruskal-Wallis test (with \( \alpha = .05 \)) was used to evaluate the DASH scores of the raters on the efficacy of the debriefer to facilitate a debrief. The Kruskal-Wallis test revealed that DASH scores varied statistically across the three rater groups for the DASH elements reported. Mean Rank, \( \chi^2 \), and p-value for each of the DASH elements is outlined in appendix F.

Follow-up pairwise comparisons were performed using two-tailed Mann-Whitney U-Tests and a Bonferroni-adjusted alpha level of .017. DASH scores were found to be statistically significantly different across all elements between the debriefer and participant rater groups, and the researcher and participant rater groups. However, there were no statistically significant differences between the debriefer and researcher scores. Appendix G outlines the Mann-Whitney U test results including \( U \), p-value and effect size for these comparisons.

### 4.3 Phase Two Results

This section of the chapter will draw upon the main themes that were identified following data analysis of the interview transcripts. Interviews were conducted with six participants from group one (debriefers), along with four participants from group two (learners). The participants were purposefully selected as described in Chapter 3. Three key themes were identified following the data analysis around the debriefing practices of the respondents;

- What does debriefing mean to me?
  - The ideas, qualities and standards that the respondents hold true and that underpin his/her debriefing practice
- How do you bring the debrief to life?
  - The ways and means by which the respondents implement the debrief
- Connecting through the debrief for mutual learning
  - The connections between the individuals participating in the debrief.

As demonstrated in Figure 11, the themes do not exist in isolation, but intersect as they describe the debriefing experience.
4.3.1 What does the debrief mean to me?

The ideas, qualities and standards that the respondents hold true and that underpin his/her debriefing practice are encompassed in the theme of “what does debriefing mean to me?”. To gain an insight into the respondents’ notion of debriefing they were asked to provide his/her own definition of the term. The idea that the debrief is a discussion or conversation that is focused on prompting reflection by the learners on their actions was consistent across the respondents:

Post simulation discussion, um, to review how those events went and, um, yeah, to discuss how that … to try and get some more meaningful information on that process and reflect on it.

Debriefer 3

A two-way conversation and … and it’s aimed at really trying to get the most out of the simulation experience for the candidate.

Debriefer 2
4.3.1.1 The Value of debriefing

The data in phase one revealed that more than half of the participants rated the importance of debriefing highly (Table 11). The value that the respondents place on the importance of the debrief was reaffirmed by comments made during the interviews:

*I think debriefing is the most important part [of the simulation activity].*

Debriefer 6

Debriefer 2 suggests that the debriefing component is more important to the learning than the simulation component of activity:

*It’s more important than the actual experience, I think, than the actual simulation, um, because that’s where the candidate learns.*

Debriefer 2

There was a sense amongst the respondents that the important learning opportunity that the debrief provided was directly related to the learners being able to reflect on their experience of participating in the simulation, providing the catalyst to reinforce or improve future performance:

* [...] you’re wanting to explore, um, people’s own perceptions and understandings of what was happening, and then expand on that and ideally incorporate the learning points of the scenario.*

Debriefer 5

4.3.1.2 The need for feedback

The idea of the debriefer providing direct feedback to the learners on their performance, and the role that it plays in the debrief, was seen by both the debriefers and the learners as an essential component of the debrief.

* [...] it’s a part of the debrief [...] to actually feedback to the candidate, you know, what they did well, where they should improve, and so I think it is part of it.*

Debriefer 2

*I guess my feedback would be more concentrating on the learning points of the simulation, so the clinical content. Um, and there’s also a separate type*
of feedback which is talking about, um, performance. So, you know, sort of individual performance feedback.

Debriefer 5

[...] you want to be able to get their feedback on how we can improve.

Learner 1

It was clarified by Learner 2 that whilst feedback is a desired component of the debrief, the debriefer needs to strike a balance as to how much feedback to give to achieve effective learning:

I think the other thing is that sometimes people give too much feedback, ah, and you just get swamped. So I think a couple of take home points is good rather than a ... if it’s too comprehensive you don’t actually take any of it in.

Learner 2

4.3.1.3 Confidentiality

Confidentiality was a subtheme identified under the theme of ‘beliefs and values’. It is widely accepted practice that team and individual performance in the simulation will be discussed in the debrief, but not outside of that setting as to ensure learner confidentiality. Several of the respondents reported occasions when they deviate from this:

I don’t, you know, generally tend to communicate any ... any problems in the simulation to my colleagues. But then we obviously have a regular debrief about how our candidate or our juniors are doing and then, um, you know, that’s just purely from a clinical point of view, so I think there is a particular deficiency that we picked up in our junior doctor during the simulations when you were there, and I plan to ... to monitor how that deficiency is working and try and to, you know, sort of work on ... on getting that, um, better and that behaviour more appropriate

Debriefer 2
Debriefer 6 shared that he/she often spoke with participants about the simulation in the clinical environment as a means of linking learning and reflection discussed in the debrief into the learner’s clinical practice.

*I do talk to a lot of people outside simulation because, um, I'm just trying to sort of, um, teach people when I'm not doing simulation, the importance of simulation and take their opinion as to what do they feel about simulation and how did they feel as a participant.*

Debriefer 6

There is no suggestion that either of the above respondents felt that continuing the conversations outside of the education space breached the learner’s confidentiality.

4.3.1.4 The Key to Success

When asked to reflect on what they saw as evidence of an effective debrief the consistent response from the debriefers was that of positive feedback from learners:

*everyone around the group looks happy.*

Debriefer 4

*the response of the participants and observers to say that they found that (the debrief) helpful.*

Debriefer 3

*they (the learners) want to come back for more.*

Debriefer 5

Attributes that respondents felt were important on the part of the debriefer to achieve an effective debrief included being honest, approachable and systematic in their approach:

*I'd hope that I'm relatively approachable, um, which might be something that they've picked up previously. Um, I try and be fairly systematic.*
Um, I think you, um, do need to be honest if there is anything that was, you know, totally done incorrect or there was some sort of really bad communications, I think you can’t, um, be too soft and sort of shy away from those things.

Debriefer 1

The idea that the debrief allows the learner opportunity to think and reflect on their performance in the simulation was seen consistently by the learners as being a key aspect of the debrief:

I suppose those that I’ve appreciated the most, um, the ... the debrief has been, ah, I don’t know, enabled you to think a little bit more critically about, um, you know, some of the, um, the things you might have done during the simulation.

Learner 4

you’ve able to think about what you’ve done and then reflect and then discuss, I suppose

Learner 1

Debriefer 1 felt that the debrief became ineffective when they tried to achieve too much in the allocated timeframe or dominated the conversation.

I find the times that we don’t quite meet them is when things ... there’s too many objectives, so if we ... yeah, we try to cover too much.

the person/facilitator sitting up the front, ah, talking saying and not really giving, um, everyone the opportunity to sort of, um, talk about how they felt they went

Debriefer 1
From the perspective of the learner it was noted that a debrief where the debriefer dominated the conversation was not seen to be effective for learning:

*I think pretty much he spoke the whole time. Um, it was more like a mini tute or a mini lecture as opposed to a debrief. Most of the other debriefs I've been to, um, you know, the debriefer has, sort of, asked them some guiding questions or, you know, give some clarification but this was pretty much, ah, ... yeah, I felt like I was being spoken to the whole time, um, I don’t know, being told what I did wrong*

Learner 4

The impact of an ineffective debrief on the learner was reported as being profound.

*...people can be damaged by a simulation experience, um, and despite what you may have said right at the beginning. Um, so if the debrief’s not effective, um, ... if it’s not effective and we’re not aware of it that’s potentially quite a problem. They disengage, become disinterested, um... resulting in feeling a lack of empowerment.*

Debriefer 5

4.3.2 How do you bring the debrief to life?

A consistent theme was respondents debriefing practice. The ways and means by which the respondents implement the debrief is reflected in the theme of ‘how do you bring the debrief to life?’. Subthemes that were identified include planning, conversation structure, multitasking and the physical environment.

4.3.2.1 Planning

All medical staff are involved in the teaching of others at some time in their career. The literature suggests that very few receive any formal training in teaching skills, with an assumption that clinical expertise is essential means they will be able to teach\(^\text{84}\). Whilst not necessarily formalised, respondents shared how they approached the planning phase of their simulation event:
in the process of coming up with the simulation you want to have an idea of what your main learning objectives are.

Debriefer 1

I have a checklist, um, that I write for my simulation. For the things that I particularly want the candidate to be thinking about or get.

Debriefer 2

Whilst the respondents all verbalised that the creation of learning objectives formed part of their planning phase, the formulation of objectives around non-clinical task was seen as difficult due to the fact that the number and discipline of the learners who would be in attendance was unknown:

find it hard to pinpoint objectives for particular cases around the communication and teamwork and team leadership because that very much depends on who's there and how many people are there as ... as much as it does in the actual case that you present

Debriefer 3

Whilst formulating clear objectives helps guide the debrief, the respondents also stressed to importance of remaining flexible in their approach:

not every sim gets to the objectives... there might be learning points about the algorithm that we just decide on a particular day not to get to. Um, because there's enough learning and discussion that's occurred in the simulation already.

Debriefer 5

4.3.2.2 Debriefing Structure

Each of the respondents described a phased approach to running a debrief. Whilst no respondent named a particular method such as the GAS model, Pendelton’s model of feedback, or SET-GO, they each described a number of phases or stages that they progress through. Despite stating that they are “not strictly following a formula for debrief” Debriefer 5 went on to describe method applied:
There's an obvious formula where you sort of try and set the tone and set the scene and have certain things you want to talk about and perhaps a few things you've noticed during the sim that you want to talk about.

Debriefer 5

Starting the debrief with a reactions phase was expressed by all of the respondents, and it can be seen in the response from Debriefer 3, the concept of touching base with people’s feelings:

I have a broad plan of attack in as much as, um, I want to broadly get a sense of how people ... what they thought, how they thought the scenario went, um, what went well, what they would have done differently, um, and what they thought they did well, and then also usually, um, direct the ball to whoever’s team leading in a more specific way and try and work through that.

Debriefer 3

4.3.2.3 Timing

Time away from the bedside delivering patient care is precious, particularly in the rural environment when staffing levels are already stretched. The allocation of time for each component of a simulation activity as a subtheme of ‘practice’ is an integral part of the medical educator’s debriefing practice. Respondents were asked to reflect on how they divided up their allocated teaching time between the simulation activity and the debrief. Respondents suggest between 15 and 20 minutes should be allocated to the debriefing component, highlighting however the importance of flexibility as it was dependent on the time taken to complete the simulation:

I think that’s something you need to be a little bit flexible with in terms of debrief, I think it needs to be as long as it needs to be, um, to address your objectives and to make sure everyone in the group feels happy about the sim that they’ve just done.
I don’t normally put a timeframe on it but our ... our debriefing sessions will go from sort of anywhere for probably ten to 20 minutes through our ... ah, for most sims. Um, if it’s a shorter sim then that may be shorter.

Debriefer 1

it depends on how long the simulation is run for, I guess. You know, we do quite a mix of simulations between, um, 15 minutes and 30 minutes and, um, really I want the debrief to last, um, the same amount of time, if not longer. So at least ... at least 15 to 20 minutes and then sometimes some of the longer ones, um, there’s so many points to raise it can come up to 40 minutes.

Debriefer 2

It is evident from both the debriefers and the learners perspective that ensuring adequate time is allocated for the debrief enables time to reflect.

And even sometimes the longer you sit in the debrief, the more confident you are to say what you think. ... the longer the debrief goes on.

Learner 1

I strongly believe that people should actually open up during debriefing and [...] it takes time, so that's why I want to, sort of, ah, give more and more time. I strongly believe that more the time you have for debriefing, I think better it is.

Debriefer 6

4.3.2.4 Multitasking

The rural medical educator is often required to single handedly take on all of the tasks associated of facilitating both the simulation and the debrief. This often meant the educators would be required to operate the manikin, whilst at the same time observe the team to be able to facilitate the debriefing conversation. The
impact of the need to multitask effects both the simulation activity and the debrief as highlighted by the responses below:

You can see that if you’re just doing the simulation and the debrief yourself and that’s fairly busy. Um, I tend to try not to make the actual simulation too complicated, um, because of that.

Debriefer 2

As the person that is doing the debriefing I think it does work much better if they can sit right back and just be an observer rather than be involved because I think you do, um, it is ... you can get caught up in the logistics of, you know, organising mannequins, organising computers and things and you miss, um, sort of all things regarding communication or something, you know, that was done incorrectly.

Debriefer 1

Several of the respondents made reference to tools and techniques that were used during the simulation activity that would aid them during the debrief. The use a paper-based cheat sheet and the use of a co-debriefer were raised.

I make sure I have a piece of paper and a pen with me when I’m ... when we’re doing the scenario and I’ll just literally jot things down as something hits my brain that either I really liked or I was a bit unsure about why they might have chosen an action. Um, and I’ll always remember then I can come back and I can, um, when I get to the end I can then, um, look at my notes and decide what I want to do. I think note taking, writing, having a piece of paper and be able to write it down and have it out of my brain is probably the most important thing for me really, and at the end just having the time to formulate a ... a plan for the debrief and do a bit of a preview and it seems to work. I find I ... I ... yeah, it just probably more puts me off if I have any template there.

Debriefer 4
preferably on that case actually is the backside of the simulation, um, that I ...

Debriefer 3

Debriefer 5 suggests that whilst writing notes during the simulation activity may be useful, it also has a potentially negative impact on the ability to actually observe the learners performance:

4.3.2.5 Co-debriefing

The subtheme of co-debriefing was seen as both a positive and a negative to a debriefers practice. Respondents noted the difficulty in logistically working with another debriefer, often that they are simply not available from a staffing perspective, but that when co-debriefing does occurs it improves the logistics of the session. This is highlighted by the comments below:

I’d try and make sure that, um, I’m with, um, a colleague when I’m actually running the simulation so that one of us can take some notes and things to feedback to the candidates and bring up in the actual debrief it’s so disappointing if there’s only just one of us. Um, so, um, I think it just helps balance. And deeper views. And sometimes you pick up things that
when you’re running the simulation that you just don’t … don’t see happen, and so it’s often good to get an observer who … I like to try and get them to look at the teamwork factors rather than the actual clinical course and to actually see people’s interactions

Debriefer 2

If I’ve got four subjects to address, I’ve got a direction I’m heading, and my brain might be saying, “Give them some questions first, then do something learning, then do some follow up,” whilst someone else might be saying, “Oh, he’s totally forgotten to talk about this.” And so if they still keep on butting in then we’re going to be derailed by each other... will let me do my thing, and then they can jump in and out

Debriefer 4

4.3.2.6 Physical Environment

The physical environment in which the debrief occurs can impact both positively and negatively on the debrief. All respondents were aware of this, and reflected on the environment that they have in which to debrief. A common thread from respondents was the need to achieve a circular space, as opposed to seats in rows, as it was expressed that this had a positive impact to how the debrief unfolded:

I like sort of a nice circular environment where it feels that everyone is sort of at an equal level, um, and part of a discussion rather than sort of a lecture or a didactic situation.

Debriefer 1

[...] is kind of around a circular table, which is good for eye contact and ... and you just have to make sure you position yourself, um, um, to the candidates.

Debriefer 2
Debriefer 3 reflected on the importance of facilitating a seated debrief, away from the simulation space and equipment, on the learners ability to reflect:

*I’m a tall person so I find a seated environment helpful. Because it takes away the potential for people to feel intimidated from that angle. Um, … I also find it can help people be on a more level playing field as everyone then can feel, they can contribute hopefully, [inaudible] a bit distant. I think also it allows a … a sense of disconnect from the actual sim, ah, which can be helpful to then aid people to reflect. It also stops simple things like people not fiddling with bits of equipment that they don’t need to fiddle with and being distracted that way.*

Debriefer 3

Several respondents expressed dissatisfaction with the space available to them to facilitate the debrief. The lack of dedicated teaching space suitable to facilitate both the simulation and the debrief, as evident by the comments from Debriefer 2, was a common experience, however it was acknowledged that there was little that could be done to change this:

*It’s a bit of a shame that’s a little bit of a corridor way. Um, but really it’s the best place to have it. It’s quiet, it’s enclosed, it’s, um, um, … you know, um, there’s no distractions there. So I think … I think that probably is our best place and it’s a shame that’s a little bit far away from our actual, um, um, clinical area. We can’t really do anything much about the actual tables, because that’s the predominant feature in the room. It’s right in the middle.*

Debriefer 2

4.3.3 Connecting through the debrief for mutual learning

The third major theme to be identified was connecting through the debrief for mutual learning. This theme explores the connections between the individuals participating in the debrief. Interprofessional learning opportunities in the undergraduate learning environment are becoming more commonplace. The
opportunities for interprofessional learning in the clinical setting however is much more adhoc, with most learning occurring in discipline specific silos. The relationship between the group of learners of different disciplines was not seen by Learner 1 having a negative impact on the ability of the learners to contribute to the debrief:

There’s no hierarchy that I feel within it. Like, I feel like it’s a group and everybody is free to say what they want to say. There’s no, “Oh, you’re a doctor and I’m a nurse,” sort of hierarchy.

Learner 1

In relation to the debriefer/learner relationship respondents felt that the relationship between the learner and the debriefer in rural environments was unique and had a positive impact on learning. Debriefer 3 and 4 reinforce the fact that rural sites have few staff, and that as a result all staff members are more intimately know to one another.

I guess the fact that you have a smaller group that you know everyone that’s in the sim, you, um, it probably means ... for most people it means that they will, you know, get out of their shell and get really involved and, um, rather than sort of take that sit back ... I think that’s a positive thing, um, in terms of learning and being able to, you know, pick a skill and then run with it.

Debriefer 3

the team players inside the sim are the same as the team players outside and ... yeah. So there’s an advantage

Debriefer 4

Debriefer 5 suggests that relationships between the learner and the debriefer in the rural environment exist on both personal and professional level, with no suggestion that this has a negative influence on the debrief:

You know, we have quite a personal relationship with all the junior docs and a lot of the guys that are here have been, um, interns or medical students
here... if it's [the debrief] not effective and we're not aware of it that's potentially quite a problem. But, ah, I ask people informally along the way

Debriefer 5

The issue of hierarchy between the debriefer and the learner was addressed by Debriefer 6 who expressed issues experienced as the boss debriefing his/her subordinate.

sometimes there is a problem because it's a small hospital and everybody knows me, I know everybody, and they sometimes might feel ... the won’t open up as much as they should. They thought “I'm talking to my boss and it won’t be taken in the right spirit”. So that was a bit of an eye-opener for me.

Debriefer 6

This was echoed by Learner 4 who described the experience of being debriefed by the boss:

The debriefer’s my boss. So that's, um, quite a difficult position to be in when you have to go back to the unit together afterwards.

Learner 4

Debriefer 1 was able to provide insight into the reverse experience of being a resident medical officer debriefing senior medical officers and consultants.

it can be something that’s a bit tricky. I suppose actually the experiences I have it hasn’t been too much of an issue it actually hasn’t been as surprisingly not as much of an issue as I thought it would be, debriefing, um, people that are more senior, um, and I guess my strategy for that is just to let them go, um, acknowledge that they are more senior and then, um, just give little bits of, um, feedback where appropriate.

I mean, there's obviously sometimes that I feel, you know, there's tricky questions that get raised that might be more clinical, um, related, I guess that’s the only sort of situation where ... but sort of you ... you have to be
aware of where your, um, you know, what your knowledge base is, um, and, you know, just say, “We can address that, um, next week,” or “We’ll find out,” or whatever

Debriefer 1

Debriefer 1 was also able to report on the experience of debriefing peers, and the positive impact of being debriefed by someone with the same level of clinical expertise.

I think it often, um, will allow them to sort of discuss things that they may not feel as sort or more talking to sort of, I guess, peer-based learning as opposed to, um, someone sort of looking down here. I think they all, um, often are more comfortable to bring up a issue that they may have thought was silly or something like that. Um, so I think, yeah, it can be positive in that sense.

Debriefer 1

4.4 Summary

This chapter has presented the results of the online survey, DASH tool ratings and one to one interviews. The results have been presented in two sections, quantitative and qualitative results in line with the explanatory mixed methods approach adopted in this study. The quantitative section provided results relating demographic describing the respondents, along with the behaviourally anchored rating scores from the DASH tool. The narratives provided by the respondents have undergone a thematic analysis with the prominent themes presented.

The final chapter will consider and discuss the qualitative and quantitative results presented here, their relationship to and impact upon the understanding of the debriefing practice of rural medical educators.
5 DISCUSSION AND CONCLUSION

5.1 Overview
The previous chapter presented the results from qualitative and quantitative phases of this mixed methods study. This chapter draws together those results, and refers to the literature and research questions to address the key focus of the study. Contributions made by this study to the field of simulation debriefing are highlighted, as well as identifying the limitations and proposed areas for future research.

5.2 Discussion of findings
The key findings from the research are best examined by returning to the aim and questions underpinning the research. The overall aim of the research was to explore the current practices of simulation debriefing activities conducted by medical educators working in rural hospitals in Western Australia.

5.2.1 Rural medical educator profile
The findings of this study suggest that the average rural medical educator in Western Australia is male, aged between 40-49 years, who completed medical training in Australia, and is working as a consultant in an emergency department. These finding are consistent with data published by Rural Health West in 2014, that found the average age of practitioners in rural and remote Western Australia was 47.5 years, and that men made up to 60% of the workforce. The findings are, to some extent, at odds with that published by Rural Health West in that the percentage of those who gained their medical qualifications overseas versus in Australia. According to the Rural Health West data 55% of rural and remote practitioners are trained overseas, compared to those in this study which showed that 67% of respondents trained in Australia. Data collected in this study supports the previously published data that the largest proportion of medical graduates graduated from United Kingdom and India. The findings from this research may be due to a higher percentage of medical educators in rural settings in Western Australia.
WA being trained in Australia. Hence, the percentage of Australian trained doctors being involved in medical education is not a true reflection of the percentage in the rural workforce.

5.2.2 How are debriefing sessions conducted in rural hospitals?

All of the six debriefs that were observed as part of this study occurred immediately after a simulation activity. Sawyer, Eppich, Brett-Fleetgler, Grant and Cheng refer to this type of debriefing as postevent debriefing. The authors go on to suggest that postevent debrief can be further categorised as being either facilitator-guided or self-guided. All debriefs that formed part of this study are categorised as facilitator guided postevent debriefing. These findings are consistent with previous literature that suggests that this is the most commonly used method for simulation debriefing and that it is preferred over within-event debriefing by learners.

One of the themes to emerge from the analysis of the data was the debriefing conversation structure. The participants showed a clear preference for dividing the debriefing conversation into three phases: a reactions phase, an analysis phase, and a summary phase. Whilst most participants did not name the particular structure they adopted, the fact that they did employ a structured approach assisted the debriefer to facilitate a learning conversation as opposed to what Sawyer, Eppich, Brett-Fleetgler, Grant and Cheng refer to as “an unfocused series of comments or observations”.

The study found that educators working in rural environments tend to deliver simulation-based education on their own or with one other colleague. This results in the need to multitask, including inputting clinical changes into the manikin software to either reflect the care provided or to trigger the next phase of the scenario, all done whilst observing the learners performance so as to facilitate a debrief of their performance. How much this multitasking impacts their ability to observe team and individual performances during the simulation activity and ultimately reflect on events of the simulation activity during the debrief cannot be
determined by the data. This is an important consideration when planning simulation based education, and one that has not been examined in the literature to date. This is also an important component to consider in the ongoing professional learning of medical educators involved in simulation based education. Standard programs developed to assist in the training of instructors have focused on best practice and do not always consider the reality of SBE delivery in a rural setting. Ensuring that these skills are taught and nurtured may assist in continued quality program delivery and debriefing.

The physical environment in which the debriefing occurs was another theme that emerged from the data as a concern for the debriefer. Hospital based educators are often competing for teaching space, a topic that is not addressed in much of the literature, but an issue that can impact the planning, implementation and effectiveness of the debrief. The six debriefing activities that are discussed in this study, took place in three different clinical sites – site A, B and C (refer Figures 9, 10 and 11). The nature of the data does not allow the researcher to determine whether the different configurations impacted on perceived effectiveness of the debrief, a possible area for further research.

5.2.3 How do the medical educators and learners perceive they are delivering/receiving simulation debriefing?

The findings suggest that the educators rated themselves as average across elements two to six on the DASH tool:

- Maintains an engaging learning environment
- Structures the debrief in an organised way
- Provokes engaging discussion
- Identifies and explores performance gaps
- Helps trainees achieve or sustain good future performance

These findings run counter to the widely expressed view that individuals exaggerate their skills and abilities, believing that they are above average. One
reason for this may be the imposter phenomenon. As educators working in rural hospitals are often delivering education in isolation it may be difficult for them to realise that their peers at other sites may be having similar experiences, resulting in them incorrectly assuming that they are worse off than their peers. Another perspective may be that the isolation of an educator inhibits their ability to benchmark their abilities and development against their peers. More frequent peer to peer mentoring and possible video links to observe and discuss each others practice may assist in developing a clearer understanding of areas that one needs to develop and areas that they are excelling at.

The learners consistently rated the educators as very good across elements two to six of the DASH tool, suggesting that they perceive they are receiving consistently effective debriefing. What was not revealed in the study was what benchmark the learners were using to rate the educators. It is unknown how much exposure or experience the learners had with simulation debriefing prior to participating in this research. It is also unclear as to what the learners perceive the purpose of the debrief to be and whether they believe that the purpose is being met by the educators leading the debrief.

5.2.4 What education or training do medical educators receive, and what demographic and training related factors may be associated with effective debriefing?

The question of what makes a good medical educator is an area of much discussion in the literature. There has always been an expectation that doctors will teach, but the opportunity to develop and practice their teaching skills often gives way to clinical need. The findings reveal that 14 (67%) of the 21 educators who participated in phase one of this study have undergone some form of formal training around the use of simulation in the healthcare setting. All six educators who participated in phase two identified that they had undergone training in the use of simulation. Whilst participants identified the particular training course
undertaken, data were not collected on the duration and content of the specific training courses. The findings suggest that there is a positive association between training in the use of simulation in healthcare and the delivery of effective debriefing, which is consistent with the findings of McLeod, Brawer, Steinert, Chalk and McLeod 90 that teaching is improved by attending a course that includes basic educational theory. Whilst attendance at such training may result in continuous professional development points by the various colleges, for participants in this research study completion of simulation instructor programs is voluntary, and not deemed as mandatory by their employer.

The findings suggest that the relationship between the learner and the educator in the rural education environment has a positive influence of the effectiveness of the debrief. In the rural settings a smaller group of learners will often learn with the same one or two educators on a weekly basis over an extended period of time. Unlike in metropolitan teaching hospitals where the relationship between learner and educator usually exists only in the clinical and educational context, the relationship in rural hospitals often extends beyond the working environment to include the personal space. It has been reported by participants that the comprehensive knowledge that the educators develops over a period of time about the learner has a positive impact on the conversational style of the debrief. However, the same relationships may also have the potential to have a negative impact. As reported in the results the numbers of educators and staff in a rural setting can be low. This may contribute to a hierarchical imbalance in delivery in which participants are being educated by their direct manager, hence removing the concept of confidentiality and inadvertently creating an environment in which the participants think they are being assessed and may fear making errors.
5.2.5 What do medical educators see as essential for an effective debrief in a rural setting?

The findings suggest that a key component essential for an effective debrief is the physical environment, as it has an impact on both the verbal and non-verbal communication between the participants. The ideal environment was reported as being one where all participants could sit, preferable in a circular arrangement as highlighted in Figures 8-10, where participants could maintain eye contact and not be distracted by the simulation equipment or clinical activity.

The study participants reported that the concept of confidentiality often referred to as the ‘Vegas Rule’, where what happens in the simulation space stays in the simulation space, cannot apply in small rural environments. With fewer senior clinicians employed in rural environments, medical educators are also tasked with the supervision of junior medical staff. This means that any performance issues raised in the simulation space may require follow up and remediation outside of the simulation environment. These findings appear to be at odds with those who espouse that psychological safety is essential to effective debriefing. Ganley and Linnard-Palmer define psychological safety as the opportunity to “behave or perform without fear of negative consequences”. It is how the educator caching the ‘negative consequences’ which is the theme that has emerged from this study that is particular to rural based simulation programs. The reflection and conversation between learners, and the learners and educators continues after the allotted debrief time. That is, simulation events are not stand alone educational opportunities, but are entwined in delivery of clinical care and bedside teaching. An important aspect for educators to be conscious of as a results of this breakdown in separation between simulation performance and confidentiality is the performance being exhibited by a participant in a simulation environment may be impacted by a number of factors only present in this environment. There is a need for an educator to remind themselves that the performance of a participant in simulation may not be reflective of their clinical ability. With such a close relationship between participant and educator and the continued supervision of participants by these
educators in the clinical environment, it may be difficult to separate education from clinical work.

5.2.6 What is the impact of ineffective debriefing on achievement of the stated learning objectives?
The findings suggest that when medical educators fail to achieve an effective debrief the learners become disengaged, disinterested and feel disempowered. One of the respondents went so far as to suggest that poor clinical performance in the simulation, if not addressed appropriately in the debrief could translate to replication of poor performance at the bedside. These findings are consistent with previous research by Marteau, Wynne, Kaye and Evans \textsuperscript{92} that found misplaced confidence can result in performing procedures ineffectively, and doctors are unlikely to see the need to improve their skills. Continued development and awareness of the success as a debriefer is a difficult aspect for many rural educators. Without mentors and peers on site to assist in providing professional feedback and assist in future development an educator may not know that they are not meeting expected learning objectives and in turn not addressing performance issues with participants. Further implications of this may be that confidence in the educators by the participants may be diminished for future sessions resulting continued negative outcomes.
5.3 Researcher Reflections
Reflecting on the research process the researcher noted that the method used to collect the phase two one-to-one interview data had an impact on the depth and quality of some of the responses collected. As respondents were rurally based and the researcher based in the city, interviews were conducted via teleconference. Teleconferencing is a mechanism that all parties were familiar, and engage with regularly. On reflection, this method of data collection resulted in two factors that impacted on the quality of the data collected; time to comfort; and inability to read non-verbal cues.

The time required for the researcher and the respondent to reach a comfort level where in-depth questioning could occur took about half of the time allocated to the interview. This resulted in responses that were cursory in nature and not probed or investigated further by the researcher. The inability to read the non-verbal cues during the interview may have also contributed to the limited probing questions by the researcher.

5.4 Study Limitations
This research, as with any study, has limitations that must be acknowledged when interpreting the reported results\textsuperscript{93,94}. One of the limitations identified in this research is the absence female participants in phase two of the study. Females make up approximately 40% of the medical workforce in rural Western Australia\textsuperscript{85} The lack of representation in the second phase was due to their availability in the data collection window.

The opt-in rate of the learners in the phase two interviews has been identified as a limitation. Of the 37 learners that participated in rating the debrief using the DASH tool, only four volunteered to continue on to partake in the one-to-one interviews. This small sample size may have impacted on the ability to report a comprehensive understanding of how the learners perceive the debriefing activity.
Unfamiliarity with the DASH tool by both the learner group and the educator group may have impacted the reliability and validity of the data. Brett-Fleegler, Rudolph, Eppich, Monuteaux, Fleegler, Cheng \(^6\) reported that, following a 4.5-hour training session on the use of the behaviourally anchored rating scale, the DASH yielded reliable data for use in the assessment of simulation debriefings. The majority of participants in this study had not previously encountered the tool which may have impacted their understanding of the tool’s various elements.

For these reasons, the findings cannot be generalized to the broader community based on this study alone.

### 5.5 Implications for educational practice

This research set out to establish the current practices and identify aspects of debriefing that are unique to the rural environment. The implications of these findings for educational practices include the need for simulation-based learning activities to be formally integrated into the medical education curriculum, and not be seen as standalone educational activities. The results show that the learning conversation does not and should not end at the conclusion of the debrief, but continue to thread through to other clinical skills and bedside teaching opportunities.

Other findings raise the issue of self-assessment of debriefing skills. The opportunity for self and peer assessment, and the use of a common assessment tool, would provide the medical educators the mechanism to reflect on and improve their practice.

Whilst there is no organisational requirement for medical educators to complete simulation instructor training, the findings suggest that the effectiveness of the debrief is improved with training. Therefore, increased access to simulation-based instructor programs for rural medical educators would lead to more effective delivery of education. In addition, continued peer to peer mentoring and inclusion
of coaching by experts in the field will assist with the development and consolidation of skills learnt in the instructor programs.

5.6 Directions for future research

Based on the finding of this study, several suggestions can be made for further research in the area of debriefing. This is consistent with the recommendations of Raemer, Anderson, Cheng, Nadkarni and Savoldelli\textsuperscript{48} that there remains a need for research focusing on the characteristics of debriefing including:

- Who – who is debriefing
- What – what is the content and method of debriefing
- When – timing of the debriefing
- Where – environment of debriefing
- Why – theoretical framework supporting debriefing

This study explored the who, when and where of debriefing within the confines of rural Western Australia. Replication of this study to include simulation-based training that occurs in rural environments outside of Western Australia, ensuring a larger sample size with representation from female medical educators, to further understand the current practices of rural medical educators would strengthen the evidence to support the delivery of effective debriefing practices. Future studies may include educators working in rural environments that are non-medically trained and may include using simulation based education in health domains outside of medicine. The inclusion of interprofessional education based simulation may also be an area for future consideration.

One avenue for further study would be research into the comparison of debriefer assessment tools. This study utilised the various versions of the DASH tool (student, debriefer and rater), as it was the tool that the researcher was most familiar which and had trained in the use of. Other tool such as the Objective Structured Assessment of Debriefing, which has shown to be reliable in surgical based simulation, would provide a comparison of participant and educator rating of debriefing effectiveness.
The impact of a peer to peer mentor program or the use of experts in coaching educators in the use of simulation based education may also be an area for future research. This would be particularly pertinent in the rural setting where colleagues are unable to regularly observe practice in person.

These suggestions do not only relate to debriefing facilitated by medical educators, but they may be expanded to apply to other health disciplines.
5.7 Summary

This study has contributed to the developing body of evidence-based pedagogy for simulation and expanded the understanding of the current practices of medical educators debriefing in rural environments.

In the preceding chapters, the experience of rural medical educators facilitating debriefing post immersive simulation activity have been considered in an effort to understand the impact of the rural locations on achieving effective simulation debriefing. In this thesis, the findings associated with medical educators’ experiences of facilitating debriefing in rural Western Australia have been discussed. It is the expectation that educators of all disciplines, hospital management and the international simulation community will gain insight from this new body of knowledge and be able to direct further review of current practice in other rural environments, and build on the evidence to develop guidelines for those working outside the traditional metropolitan teaching environments.
REFERENCES

71. The Center for Medical Simulation International Meeting for Simulation in Healthcare Orlando, Florida.
84. Spencer J. Learning and teaching in the clinical environment. BMJ. 2003 2003-03-15 08:00:00;326(7389):591-594.
APPENDIX A EMAIL INVITATION TO PARTICIPATE
Dear Medical Simulation Educators.
You are invited to participate in a study exploring the debriefing experience for educators and learners following simulation based learning activities for doctors in rural Western Australia. The study is being conducted by the University of Western Australia. Kirsty Freeman is the Master of Health Professions Education student conducting the research. The aim of this study will be to explore the current practices of the post simulation debrief activities conducted by medical educators working in rural hospital in Western Australia.

Attached is the participant information letter and consent form. If you agree to participate, can I ask you to complete a brief online survey on your training and work history via the following link it should take approximately 5 mins to complete:

http://uwa.qualtrics.com/SE/?SID=SV_db7bw34G4UeA5md

At the end of the survey you will be asked if you would be willing to participate in the next phase of the research, to explore your experiences around debriefing in more detail. The researcher will observe a simulation activity and debrief facilitated by yourself and collect data using the Debriefing Assessment for Simulation in Healthcare (DASH) tool. You will also be invited to participate in an interview. This interview would take around 40 mins of your time and will be conducted either face to face, by teleconference or video conference. The interview will be audio recorded to assist transcription. Your participation is voluntary, will not affect your employment at WACHS and it is possible to complete the online survey without participating in the face to face interview.

Please feel free to disseminate this email to your colleagues who may also be involved in simulation based training. Approval has been provided by the HREC of both the University of Western Australia (RA/4/1/7102) and WA Country Health (2014:22).

Kind regards
Kirsty Freeman
APPENDIX B PARTICIPANT INFORMATION LETTER
Information sheet

“Debriefing practices of rural medical educators: a mixed methods study”

You are invited to participate in a study exploring the debriefing experience for educators and learners following simulation based learning activities for doctors in rural Western Australia. The study is being conducted by the University of Western Australia. Kirsty Freeman is the Master of Health Professions Education student conducting the research. The aim of this study will be to explore the current practices of the post simulation debrief activities conducted by medical educators working in rural hospital in Western Australia.

If you agree to participate, you will be asked to complete a brief online survey on your training and work history and a paper based survey rating several aspects of the debriefing experience after you have engaged in a specific learning activity. The debrief you engage in may also be usually recorded to allow the researcher to rate the debrief at a later time.

At the time of completing the online survey you will be asked if you would be willing to participate in an interview to explore your experiences around debriefing in more detail. This interview would take around 40 mins of your time and will be conducted either face to face, by telephone or video conference. The interview will be audio recorded to assist transcription. Your participation is voluntary, will not affect your employment at WACHS and it is possible to complete the online survey without participating in the face to face interview.

Returned surveys, and transcripts of interviews will be coded and de-identified by the researcher. The de-identified data will be stored separately in a password protected file on a secure university server and the researcher’s computer. Any paper surveys will be kept in a locked cupboard at the Faculty Education Centre. Audio and video recordings will be deleted on completion of the study and all other data will be deleted seven years after the study is completed. The findings of this research will at no time be presented in any form that would facilitate identification of the individual participants. Your participation is voluntary, will not affect your employment at WACHS and you are free to withdraw your participation at any time up until the responses have been de-identified and coded. In such cases, your records will be destroyed, unless you agree that the researcher may retain and use the information obtained prior to your withdrawal.

Further information about the project and its results can be obtained by contacting the Chief Investigator or researcher as per the information below. If you have any complaints about the way in which this research project is being conducted you can contact the Secretary, Human Research Ethics Committee at the University of Western Australia on (08) 6488 3703 or by emailing to: hrec-research@uwa.edu.au or WA Country Health Service (WACHS) Research Ethics Committee on 0417 908 594 or by email: wachs.researchethicscommittee@health.wa.gov.au. Your concerns will be drawn to the attention of the Ethics Committee who is monitoring this Study”.

Chief Investigator
Professor Sandra Carr
Associate Dean of Teaching and Learning
Phone: 08 6488 6992
Email: sandra.carr@uwa.edu.au

Researcher
Kirsty Freeman
Phone: 0412200190
Email: kfsr@uwa.edu.au

*Approval to conduct this research has been provided by The University of Western Australia and WA Country Health Service, in accordance with its ethics review and approval procedures. Any person considering participation in this research project, or agreeing to participate, may raise any questions or issues with the researchers at any time. In addition, any person not satisfied with the response of researchers may raise ethics issues or concerns, and may make any complaints about the research project by contacting the Human Research Ethics Office at The University of Western Australia on (08) 6488 3703 or by emailing to: hrec-research@uwa.edu.au or WA Country Health Service (WACHS) Research Ethics Committee on 0417 908 594 or by email: wachs.researchethicscommittee@health.wa.gov.au.
Debriefing practices of rural medical educators: a mixed methods study

Consent Form

I have read the information provided and any questions I have asked have been answered to my satisfaction. I agree to participate in the research proposed and understand that I may withdraw my participation at any time without reason and without prejudice.

I understand that all information provided through observation, video and audio recordings and field notes is treated as strictly confidential and will not be released by the investigator. I have been advised as to what data is being collected, what the purpose is, and what will be done with the data upon completion of the research.

I agree that research data gathered for the study may be published provided my name or other identifying information is not used.

I understand that my participation is completely voluntary.

_________________________ Date

Participant

Please return the signed copy of this form to Kirsty Freeman at kirsty.freeman@research.uwa.edu.au

If you have any queries in relation to this research please contact Professor Sandra Carr (sandra.carr@uwa.edu.au, ph 6488 6932) or Kirsty Freeman a postgraduate student at UWA, this study forms part of her Master of Health Professional Education. (kirsty.freeman@research.uwa.edu.au, ph 9323 6609)

"Approval to conduct this research has been provided by The University of Western Australia and WA Country Health Service (WACHS), in accordance with its ethics review and approval procedures. Any person considering participation in this research project, or agreeing to participate, may raise any questions or issues with the researchers at any time. In addition, any person not satisfied with the response of researchers may raise ethics issues or concerns, and may make any complaints about this research project by contacting the Human Research Ethics Office at the University of Western Australia on (08) 6488 1610, or (08) 6488 3703, or by emailing to hreo-research@uwa.edu.au or WA Country Health Service (WACHS) Research Ethics Committee on 0417 068 594 or by email: wachs.researchethicscommittee@health.wa.gov.au.

All study participants will be provided with a copy of the information sheet and consent form for their personal records.

10/20/2014 Participant Consent
APPENDIX D QUALTRICS ONLINE SURVEY
Debriefing practices of rural medical educators: a mixed methods study

Participant Information

You are invited to participate in a study exploring the debriefing experience for educators and learners following simulation based learning activities for doctors in rural Western Australia. The study is being conducted by the University of Western Australia. Kimmy Freeman is the Master of Health Professional Education student conducting the research. The aim of this study will be to explore the current practices of the post simulation debrief activities conducted by medical educators working in rural hospital in Western Australia.

If you agree to participate, you will be asked to complete a brief online survey on your training and work history and a paper based survey rating several aspects of the debriefing experience after you have engaged in a specific learning activity. The debrief you engage in may also be video recorded to allow the researcher to rate the debrief at a later time.

At the time of completing the online survey you will be asked if you would be willing to participate in an interview to explore your experiences around debriefing in more detail. This interview would take around 40 mins of your time and will be conducted either face to face, by telephone or video conference. The interview will be audio recorded to assist transcription. Your participation is voluntary, will not affect your employment at WACHS and it is possible to complete the online survey without participating in the face to face interview.

Returned surveys, and transcripts of interviews will be coded and de-identified by the researcher. The de-identified data will be stored securely in a password protected file on a secure university server and the researcher’s computer. Any paper surveys will be kept in a locked cupboard at the Faculty Education Centre. Audio and video recordings will be deleted on completion of the study and all other data will be deleted seven years after the study is completed. The findings of the research will at no time be presented in any form that would facilitate identification of the individual participants. Your participation is voluntary, will not affect your employment at WACHS and you are free to withdraw your participation at any time up until the responses have been de-identified and coded. In such cases, your records will be destroyed, unless you agree that the researcher may retain and use the information obtained prior to your withdrawal.

Further information about the project and its results can be obtained by contacting the Chief Investigator or researcher as per the information below. If you have any complaints about the way in which this research project is being conducted you can contact the Secretary, Human Research Ethics Committee at the University of Western Australia on (08) 6488 3703 or by emailing an: inno-research@uwa.edu.au or WA Country Health Service (WACHS) Research Ethics Committee on 0417 085 564 or by email: wachs.researchethicscommittee@health.wa.gov.au. Your concerns will be drawn to the attention of the Ethics Committee who is monitoring this Study.

Chief Investigator
Professor Sandra Czar
Associate Dean of Teaching and Learning
Phone: (08) 6488 6822
Email: sandra.czar@uwa.edu.au

Researcher
Kimmy Freeman
Phone: 0417200198
Email: kimmy.freeman@research.uwa.edu.au

*Approval to conduct this research has been provided by The University of Western Australia and WA Country Health Service, in accordance with the ethics review and approval procedures. Any person considering participation in this research project, or agreeing to participate, may raise any questions or issues with the researcher at any time. In addition, any person not satisfied with the research or researcher may refer ethical issues or concerns, and may make any complaints about this research project by contacting the Human Research Ethics Office at The University of Western Australia on (08) 6488 3703 or by emailing an: inno-research@uwa.edu.au or WA Country Health Service (WACHS) Research Ethics Committee on 0417 085 564 or by email: wachs.researchethicscommittee@health.wa.gov.au

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

r Yes
r No

Demographic Information

Where are you currently working?
- Kimberley
- Pilbara
- Midwest
- Wheatbelt
- Goldfields
- South West
- Great Southern
- Other (please specify)

How long have you been working at this site?
- less than 1 month
- between 1-6 months
- between 6-12 months
- between 1-5 years
- between 6-10 years
- greater than 10 years

Please select the classification that best describes you.
- Registrar
- Consultant
- General Practitioner
- Director of Clinical Training
- Other (please specify)

What is your gender?
- Male

Female

Which category below includes your age?
- 21-29 years
- 30-39 years
- 40-49 years
- 50-59 years
- 60 or over

In which country did you undertake your medical training?

For those who trained in Australia, did you grow up in a rural setting?
- Yes
- No

In your career how long have you worked in an Australian rural setting?
- Less than 1 month
- between 1-6 months
- Between 6-12 months
- between 1-5 years
- between 6-10 years
- greater than 10 years

What clinical area are you currently working in?
- Medical
- Surgical
- Emergency Medicine
- Anaesthetics
- Obstetrics

Simulation Knowledge

In your own words what is simulation based training?

Have you undertaken training in how to use simulation based education (e.g. simulation instructors course, AusSETT, NHET-Sim)

- Yes (please provide examples)
- No

On a scale from 0-10, how would you rate the importance of the debriefing component of a simulation based activity to achieving the learning objectives?

Delivery of Simulation Based Training

On average how often do you teach using simulation based training?

- More than once a week
- Once a week

c  Once a fortnight

C  Once a month

C  Other (please specify)

Where is the simulation training occurring? (tick all that apply)

C  In a dedicated education/simulation teaching space

C  In situ (in the clinical area/department e.g. free bed space)

C  Other (please specify)

Do you currently evaluate the simulation activities that you do?

C  Yes (describe how you evaluate e.g. verbal feedback from learners/colleagues, paper tool)

C  No (provide information on why not)

Phase two of the study will focus on explaining and exploring the findings of the quantitative data obtained in this survey and the data collected from the Debriefing Assessment for Simulation in Healthcare (DASH) tool, completed after a debriefing event. This phase will involve you participating in an interview.

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

C  Yes

C  No

If you consent to participate in a phase two interview please provide your details below to enable the researcher to contact you. Please note this information will not be used for any other purposes.

Name

APPENDIX E DASH RATING TOOL
Debriefing Assessment for Simulation in Healthcare (DASH) Instructor Version®

Directions: Please provide a self-assessment of your performance for the introduction and debriefing in this simulation-based exercise. Use the following rating scale to rate the “Behaviors” and “Elements.” Do your best to rate your overall effectiveness for the whole Element guided by the Behaviors that define it. If a listed Behavior is not applicable (e.g., how you handled upset people if no one got upset), just ignore it and don’t let that influence your evaluation. You may have done some things well and some things not so well within each Element. The Element rating is your overall impression of how well you executed that particular Element. Element 1 assesses the introduction at the beginning of the simulation-based exercise. Elements 2 through 6 assess the debriefing.

Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptor</td>
<td>Extremely Ineffective / Detrimental</td>
<td>Consistently Ineffective / Very Poor</td>
<td>Mostly Ineffective / Poor</td>
<td>Somewhat Effective / Average</td>
<td>Mostly Effective / Good</td>
<td>Consistently Effective / Very Good</td>
<td>Extremely Effective / Outstanding</td>
</tr>
</tbody>
</table>

Element 1 assesses the introduction at the beginning of a simulation-based exercise.

Skip this element if you did not participate in the introduction.

Element 1

**I set the stage for an engaging learning experience**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Behavior Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. I introduced myself, described the simulation environment, what would be expected during the activity, and introduced the learning objectives, and clarified issues of confidentiality</td>
<td></td>
</tr>
<tr>
<td>B. I explained the strengths and weaknesses of the simulation and what the participants could do to get the most out of simulated clinical experiences</td>
<td></td>
</tr>
<tr>
<td>C. I attended to logistical details as necessary such as toilet location, food availability and schedule</td>
<td></td>
</tr>
<tr>
<td>D. I stimulated the participants to share their thoughts and questions about the upcoming simulation and debriefing and reassured them that they wouldn’t be shamed or humiliated in the process</td>
<td></td>
</tr>
</tbody>
</table>

Elements 2 through 6 assess a debriefing.

Element 2

**I maintained an engaging context for learning**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Behavior Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. I clarified the purpose of the debriefing, what was expected of the participants, and my role (as the instructor) in the debriefing</td>
<td></td>
</tr>
<tr>
<td>B. I acknowledged concerns about realism and helped the participants learn even though the case(s) were simulated</td>
<td></td>
</tr>
<tr>
<td>C. I showed respect towards the participants</td>
<td></td>
</tr>
<tr>
<td>D. I ensured the focus was on learning and not on making people feel bad about making mistakes</td>
<td></td>
</tr>
<tr>
<td>E. I empowered participants to share thoughts and emotions without fear of being shamed or humiliated</td>
<td></td>
</tr>
<tr>
<td>Element 3</td>
<td>I structured the debriefing in an organized way</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Behavior</td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>I guided the conversation such that it progressed logically rather than jumping around from point to point</td>
</tr>
<tr>
<td>B.</td>
<td>Near the beginning of the debriefing, I encouraged participants to share their genuine reactions to the case(s) and I took their remarks seriously</td>
</tr>
<tr>
<td>C.</td>
<td>In the middle, I helped the participants analyze actions and thought processes as we reviewed the case(s)</td>
</tr>
<tr>
<td>D.</td>
<td>At the end of the debriefing, there was a summary phase where I helped tie observations together and relate the case(s) to ways the participants could improve their future clinical practice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 4</th>
<th>I provoked in-depth discussions that led them to reflect on their performance</th>
<th>Rating Element 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td></td>
<td>Behavior Score</td>
</tr>
<tr>
<td>A.</td>
<td>I used concrete examples—not just abstract or generalized comments—to get participants to think about their performance</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>My point of view was clear; I didn’t force participants to guess what I was thinking</td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>I listened and made people feel heard by trying to include everyone, paraphrasing, and using non-verbal actions like eye contact and nodding etc</td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>I used video or recorded data to support analysis and learning</td>
<td></td>
</tr>
<tr>
<td>E.</td>
<td>If someone got upset during the debriefing, I was respectful and constructive in trying to help them deal with it</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 5</th>
<th>I identified what they did well or poorly—and why</th>
<th>Rating Element 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td></td>
<td>Behavior Score</td>
</tr>
<tr>
<td>A.</td>
<td>I provided concrete feedback to participants on their performance or that of the team based on accurate statements of fact and my honest point of view</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>I helped explore what participants were thinking or trying to accomplish at key moments</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element 6</th>
<th>I helped them see how to improve or how to sustain good performance</th>
<th>Rating Element 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior</td>
<td></td>
<td>Behavior Score</td>
</tr>
<tr>
<td>A.</td>
<td>I helped participants learn how to improve weak areas or how to repeat good performance</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>I was knowledgeable and used that knowledge to help participants see how to perform well in the future</td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>I made sure we covered the most important topics</td>
<td></td>
</tr>
</tbody>
</table>

Copyright, Center for Medical Simulation, www.haneumedsim.org, 2011
APPENDIX F KRUSKAL-WALLIS TEST RESULTS
Kruskal-Wallis Test - Element 2: Maintained an engaging context for learning

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintained an engaging context for learning</td>
<td>6</td>
<td>10.17</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>29.84</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>10.00</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

Test Statistics\(^{a,b}\)

<table>
<thead>
<tr>
<th></th>
<th>Maintained an engaging context for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>19.482</td>
</tr>
<tr>
<td>df</td>
<td>2</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

\(^a\) Kruskal Wallis Test  
\(^b\) Grouping Variable: Role in study

The Kruskal-Wallis test revealed that when rating this element scores varied statistically significantly across the debriefer (Mean Rank = 10.17), participant (Mean Rank = 29.84) and researcher (Mean Rank = 10) groups, \(X^2 (2, N=49) = 19.482, p=.000\)

Kruskal-Wallis Test - Element 3: Structured the debriefing in an organised way

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured the debriefing in an organised way</td>
<td>6</td>
<td>9.92</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>29.89</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>9.92</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

Test Statistics\(^{a,b}\)

<table>
<thead>
<tr>
<th></th>
<th>Provoked in depth discussion that led to reflection on practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>21.528</td>
</tr>
<tr>
<td>df</td>
<td>2</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

\(^a\) Kruskal Wallis Test  
\(^b\) Grouping Variable: Role in study

The Kruskal-Wallis test revealed that when rating this element scores varied statistically significantly across the debriefer (Mean Rank = 9.92), participant (Mean Rank = 29.89) and researcher (Mean Rank = 9.92) groups, \(X^2 (2, N=49) = 21.528, p=.000\)

Kruskal-Wallis Test - Element 4: Provoked in depth discussion that led to reflection on practice

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provoked in depth discussion that led to reflection on practice</td>
<td>6</td>
<td>10.25</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>29.97</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>9.08</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

Test Statistics\(^{a,b}\)
Provoked in depth discussion that led to reflection on practice

| Chi-Square | 21.528 |
| df | 2 |
| Asymp. Sig. | .000 |

a. Kruskal Wallis Test
b. Grouping Variable: Role in study

The Kruskal-Wallis test revealed that when rating this element scores varied statistically significantly across the debriefer (Mean Rank = 12.00), participant (Mean Rank = 29.30) and researcher (Mean Rank = 11.50) groups, $X^2(2, N=49) = 15.222$, p=.000

### Kruskal-Wallis Test - Element 5: Instructor identified what was done well or poorly and why

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor identified what was done well or poorly and why</td>
<td>6</td>
<td>12.00</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>29.30</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>11.50</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics

<table>
<thead>
<tr>
<th>Instructor identified what was done well or poorly and why</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>15.222</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

a. Kruskal Wallis Test
b. Grouping Variable: Role in study

The Kruskal-Wallis test revealed that when rating this element scores varied statistically significantly across the debriefer (Mean Rank = 9.83), participant (Mean Rank = 29.74) and researcher (Mean Rank = 10.92) groups, $X^2(2, N=49) = 18.622$, p=.000

### Kruskal-Wallis Test - Element 6: Instructor helped to see how to improve or sustain good performance

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor helped to see how to improve or sustain good performance</td>
<td>6</td>
<td>9.83</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>29.74</td>
</tr>
<tr>
<td>Researcher</td>
<td>6</td>
<td>10.92</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics

<table>
<thead>
<tr>
<th>Instructor helped to see how to improve or sustain good performance</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>18.622</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

a. Kruskal Wallis Test
b. Grouping Variable: Role in study

The Kruskal-Wallis test revealed that when rating this element scores varied statistically significantly across the debriefer (Mean Rank = 9.83), participant (Mean Rank = 29.74) and researcher (Mean Rank = 10.92) groups, $X^2(2, N=49) = 18.622$, p=.000
APPENDIX G MANN-WHITNEY U TEST RESULTS
Mann-Whitney U Test for Element 2: Maintained an engaging context for learning

### Mann-Whitney Test – Element 2: Maintained an engaging context for learning

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debriefer</td>
<td>6</td>
<td>6.67</td>
<td>40.00</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>24.49</td>
<td>906.00</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Test Statistics

<table>
<thead>
<tr>
<th>Tests</th>
<th>Maintained an engaging context for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>19.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>40.000</td>
</tr>
<tr>
<td>Z</td>
<td>-3.477</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.001</td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>.000³</td>
</tr>
</tbody>
</table>

a. Grouping Variable: Role in study  
b. Not corrected for ties.

### Test Statistics

<table>
<thead>
<tr>
<th>Tests</th>
<th>Maintained an engaging context for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>15.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>36.000</td>
</tr>
<tr>
<td>Z</td>
<td>-.506</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.613</td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>.699³</td>
</tr>
</tbody>
</table>

a. Grouping Variable: Role in study  
b. Not corrected for ties.

### Test Statistics

<table>
<thead>
<tr>
<th>Tests</th>
<th>Maintained an engaging context for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>24.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>45.000</td>
</tr>
<tr>
<td>Z</td>
<td>-3.304</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.001</td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>.001¹</td>
</tr>
</tbody>
</table>

RESULT: The DASH scores were found to be statistically significantly higher in the participant than the debriefer rater groups $U=19$, $p=0.000$ with a large effect size of $r=0.53$; and the participant and researcher rater groups $U=24$, $p=0.001$ with a large effect size of $-0.503$. However there were no statistically significant differences between the debriefer and researcher rater groups, $U=15$, $p=0.699$, $r=-0.146$
### Mann-Whitney U Test for Element 3: Structured the debriefing in an organised way

#### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured the debriefing in an organised way</td>
<td>Debriefer</td>
<td>6</td>
<td>6.92</td>
</tr>
<tr>
<td></td>
<td>Participant</td>
<td>37</td>
<td>24.45</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

#### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Structured the debriefing in an organised way</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>20.500</td>
<td></td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>41.500</td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>-3.916</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>.000&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

a. Grouping Variable: Role in study  

b. Not corrected for ties.

#### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured the debriefing in an organised way</td>
<td>Debriefer</td>
<td>6</td>
<td>6.50</td>
</tr>
<tr>
<td></td>
<td>Researcher</td>
<td>6</td>
<td>6.50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

#### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Structured the debriefing in an organised way</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>18.000</td>
<td></td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>39.000</td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>1.000&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

a. Grouping Variable: Role in study  

b. Not corrected for ties.

#### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured the debriefing in an organised way</td>
<td>Participant</td>
<td>37</td>
<td>24.45</td>
</tr>
<tr>
<td></td>
<td>Researcher</td>
<td>6</td>
<td>6.92</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

#### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Structured the debriefing in an organised way</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>20.500</td>
<td></td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>41.500</td>
<td></td>
</tr>
<tr>
<td>Z</td>
<td>-3.916</td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Exact Sig. [2*(1-tailed Sig.)]</td>
<td>.000&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

a. Grouping Variable: Role in study  

b. Not corrected for ties.

RESULT: The DASH scores were found to be statistically significantly higher in the participant than the debriefer rater groups $U=20.5$, $p=0.000$ with a large effect size of $r=-0.597$; and the participant and researcher rater groups $U=20.5$, $p=0.000$ with a large effect size of $-0.597$. However there were no statistically significant differences between the debriefer and researcher rater groups, $U=18$, $p=0.1$, $r=0$.
Mann-Whitney U Test for Element 4: Provoked in depth discussion that led to reflection on practice

### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provoked in depth discussion that led</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to reflection on practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debriefer</td>
<td>6</td>
<td>6.75</td>
<td>40.50</td>
</tr>
<tr>
<td>Participant</td>
<td>37</td>
<td>24.47</td>
<td>905.50</td>
</tr>
<tr>
<td>Total</td>
<td>43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics a

<table>
<thead>
<tr>
<th>Provoked in depth discussion that led to reflection on practice</th>
<th>Mann-Whitney U</th>
<th>Wilcoxon W</th>
<th>Z</th>
<th>Asymp. Sig. (2-tailed)</th>
<th>Exact Sig. [2*(1-tailed Sig.)]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19.500</td>
<td>40.500</td>
<td>-3.576</td>
<td>.000</td>
<td>.000^b</td>
</tr>
</tbody>
</table>

### Results

RESULT: The DASH scores were found to be statistically significantly higher in the participant than the debriefer rater groups U=19, p=0.000 with a large effect size of r=-0.545; and the participant and researcher rater groups U=18.5, p=0.000 with a large effect size of -0.551. However there were no statistically significant differences between the debriefer and researcher rater groups, U=15, p=0.699, r=-0.144
Mann-Whitney U Test for Element 5: Instructor helped to see how to improve or sustain good performance

### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor identified what was done well or poorly and why</td>
<td>Debbriefer</td>
<td>6</td>
<td>8.83</td>
</tr>
<tr>
<td></td>
<td>Participant</td>
<td>37</td>
<td>24.14</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Instructor identified what was done well or poorly and why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>32.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>53.000</td>
</tr>
<tr>
<td>Z</td>
<td>-2.959</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.003</td>
</tr>
<tr>
<td>Exact Sig. (2*(1-tailed Sig.))</td>
<td>.004&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>


### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor identified what was done well or poorly and why</td>
<td>Debbriefer</td>
<td>6</td>
<td>6.67</td>
</tr>
<tr>
<td></td>
<td>Researcher</td>
<td>6</td>
<td>6.33</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Instructor identified what was done well or poorly and why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>17.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>38.000</td>
</tr>
<tr>
<td>Z</td>
<td>-.173</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.863</td>
</tr>
<tr>
<td>Exact Sig. (2*(1-tailed Sig.))</td>
<td>.937&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>


### Ranks

<table>
<thead>
<tr>
<th>Role in study</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor identified what was done well or poorly and why</td>
<td>Participant</td>
<td>37</td>
<td>24.16</td>
</tr>
<tr>
<td></td>
<td>Researcher</td>
<td>6</td>
<td>8.67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

### Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>Instructor identified what was done well or poorly and why</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>31.000</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>52.000</td>
</tr>
<tr>
<td>Z</td>
<td>-2.995</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.003</td>
</tr>
<tr>
<td>Exact Sig. (2*(1-tailed Sig.))</td>
<td>.003&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>


RESULT: The DASH scores were found to be statistically significantly higher in the participant than the debriefer rater groups U=32, p=0.004 with a large effect size of r=-0.451; and the participant and researcher rater groups U=31, p=0.003 with a large effect size of -0.456. However there were no statistically significant differences between the debriefer and researcher rater groups, U=17, p=0.937, r=-0.049.
RESULT: The DASH scores were found to be statistically significantly higher in the participant than the debriefer rater groups $U=22.5, p=0.001$ with a large effect size of $r=-0.507$; and the participant and researcher rater groups $U=24, p=0.001$ with a large effect size of $-0.499$. However there were no statistically significant differences between the debriefer and researcher rater groups, $U=15.5, p=0.699, r=-0.130$.