Pocket Book for Simulation Debriefing in Healthcare

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Foreword

Debriefing is the foundation for effective simulation-based education. Simulation events provide opportunities for practice and rehearsal, while debriefing provides a forum for active discussion and learning. During debriefing, learners work with facilitators to reflect on their performance and unpack behaviours, leading to a better understanding of the underlying rationale behind these behaviours. In the ideal world, mutual reflection and discussion during debriefing lead to meaningful learning that positively impacts change in performance in the clinical environment. To ensure this translational effect occurs on a regular basis, simulation programmes must ensure that simulation educators have the knowledge and skills necessary to effectively conduct debriefings.

Healthcare simulation is a rapidly advancing field, and our collective knowledge of debriefing as an educational tool is growing alongside this field. Many educators that came into healthcare simulation years ago may have learned one method of debriefing as their "go-to" method. In the past few years, new methods, models, and frameworks have emerged that have challenged traditional thinking. Some debriefers may have learned that video is a valuable resource that should always be used during debriefing, yet recent studies have suggested limited value for the use of video review during debriefing – so what are debriefers to do? While most debriefings may proceed smoothly, sometimes difficult situations arise with learners who are upset, frustrated, or angry. What strategies can debriefers use to manage these situations? While debriefings have been traditionally viewed as an event occurring after the simulation scenario, new research supports shorter feedback conversations spaced throughout the scenario. When should this design be used in favour of the traditional post-event debriefing? Many more additional questions occupy the thoughts of debriefers as they navigate the waters of simulation-based education and debriefing in their daily practice. A comprehensive resource for debriefing is required to support day-to-day debriefing activities.

The *Pocket Book for Simulation Debriefing in Healthcare* offers a thorough review of the simulation debriefing literature in an accessible, reader-friendly format. Authored by leading international simulation experts, Dr. Denis Oriot and Dr. Guillaume Alinier, this book shares valuable tips and tricks that can help novice debriefers to acquire new skills and expert debriefers to hone their craft. Chapter 1 provides an introduction to debriefing by describing various key components to debriefing – the purpose of debriefing, who should be debriefing, when and where

debriefing should occur, and the various different types of debriefing. Chapter 2 builds on existing content by outlining specific strategies to conduct an effective debriefing. Chapter 3 offers advice on several common debriefing-related issues, such as difficult debriefing, the use of video, the use of time-outs during the scenario, confidentiality, and the assessment of debriefing quality. Lastly, Chap. 4 provides opportunity for self-reflection, so readers can place what they've learned from the book in context with their own personal experiences as a debriefer. Taken as a whole, the pocket book represents a go-to resource for simulation educators wishing to improve their performance as a debriefer. By addressing common and important issues for debriefers in this book, Drs. Oriot and Alinier have supported the development and advancement of our field. I look forward to hearing success stories from debriefers around the world!

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Preface

We met for the first time at the 7th European Congress on Emergency Medicine in 2012 in Antalya, Turkey, having been invited by the conference organisers with a few other simulation educators to run a faculty development workshop, but the idea of this pocket book emerged from another simulation workshop we ran in early 2015 in Qatar for clinical educators of various specialties from across Hamad Medical Corporation and during which we were both talking to the participants about the importance of debriefing and the various approaches that exist. Our international co-faculty suggested we should actually write a book on this topic, and we agreed to take on the challenge. Our objective was to develop a book that is relatively concise, is easy to read, and would be a helpful resource to educators with an interest in debriefing or wanting to learn more about this pivotal topic.

Simulation has gained an increasingly important place in medical education over the past couple of decades, but we think debriefing deserves a particular focus as it is a very special time shared by facilitators and their learners. This asymmetrical verbal exchange between one who "knows" and one who "learns" looks like a Socratic discussion that requires knowledge in communication, management of psychological reactions, understanding of clinical situations and their (preferably "evidence-based") management, and specific skills to run a "good" debriefing. Nevertheless, the fantastic variety of clinical cases, of educational situations, of personalities, and of cultures make debriefing a new challenge every time it has to be performed or facilitated, even for the more seasoned debriefers. Debriefing facilitators often wonder where to start, how to handle this, and how could this have been missed? Both of us also know the risk of a "bad" debriefing and how it could be counterproductive or even dangerous from a relationship perspective. This is why we thought that, with our respective experience in debriefing, it would be worthwhile to create a pocket book to help novices and beginners in debriefing to find their way in this moving field of communication in education. This book may also be of interest to clinicians or educators who have been using debriefing for several years but want to broaden their views on this specific subject and gain the insight from other professionals in the field.

In a first chapter, we explore the basic foundations of debriefing per se, its place in simulation-based training, and its relation with prior briefing of the learners or the introduction they should receive about the simulation process and the environment and equipment orientation. The second chapter covers the practical aspects of

debriefing such as its general structure, how to facilitate the various phases of a debriefing and why they should exist, and which investigational techniques can be used to close performance gaps. The third chapter covers general tips and specific issues around debriefing such as how to prevent or handle difficult debriefings. This chapter is not exhaustive by any means since a fair amount of research is still under way on this subject aiming to improve the benefits of debriefing for the learners. For the final chapter, we expect you to be a reflective contributor to this pocket book. The blank pages are meant to be used for your personal reflections as a debriefer. It will hopefully become your diary so you can log important learning episodes. These may be great debriefing examples that you would like to remember forever or epic debriefing failures from which you have learned something crucial. We expect this section to be useful in the present and the future of someone's development as a refined debriefer.

We sincerely hope you will find this pocket book user-friendly and consider it as a valuable companion to prepare yourself to facilitate successful debriefings with your colleagues and for your learners.

Hatfield, UK — Guillaume Alinier
Poitiers, France — Denis Oriot

Acknowledgements

We are mutually thankful for having diligently collaborated in writing this pocket book in a very complementary manner (both wearing multiple hats, but one author being primarily an educator and the other one being first of all a physician) and mostly without clear assignments! We could feel some sort of implicit and natural symbiosis throughout the development of this pocket book despite limited direct interactions and working in different continents, and this is the final result.

We are really appreciative of the insight gained over the last couple of decades of our professional careers regularly facilitating scenario-based simulation education in various settings and with learners of a wide range of experience and from various professions and specialties. Much of these opportunities have either been bestowed upon us as trusted faculty to run invited workshops internationally for or with fellow educators, clinicians, and learners or thanks to the willingness and flexibility of our respective academic and clinical employers to support our passion and aspirations in relation to simulation-based education in healthcare. Much of the experiences are directly reflected in this pocket book in a more or less implicit manner so we are grateful to the people who inspired us, either as role models or as anonymous discussion subjects!

Last but not least, we are also particularly grateful to our respective families who support us in all possible ways in our educational and academic endeavours, especially our spouses, Nandini and Marie-Line; our children, Guillanam, Prillanam, Caroline, Annelise, Benjamin, Elsa, and Melissande; as well as our parents who we will always strive to make proud. Thank you for your patience with us and for not being too jealous of our computers!

Contents

Abbreviations

ABC	Airway, Breathing, Circulation
AI	(A/I) Advocacy Inquiry
CPR	Cardiopulmonary Resuscitation
CRM	Crisis Resource Management
DASH	Debriefing Assessment for Simulation in Healthcare
DEBRIEF	Defining, Explaining, Benchmarking, Reviewing, Identifying, Explaining, Formalising
DML	Debriefing for Meaningful Learning
GAS	Gather, Analyse, Summarise
GREAT	Guidelines, Recommendations, Events, Analysis, Transfer
IO	Intraosseous
LEARN	Learning Objectives, Emotions, Actions, Reflection, Next Steps
OSAD	Objective Structured Assessment of Debriefing
PEA	Pulseless Electrical Activity
PEARLS	Promoting Excellence And Reflective Learning in Simulation
RCDP	Rapid Cycle Deliberate Practice
RSF	Reflective Simulation Framework
RUST	Reaction, Understanding, Summarise, Take-Home Message
SHELL	Software-Hardware-Environment-Liveware-Liveware
SIDRA	Sincere, Innovative, Dedicated, Respectful, and Authentically care about doing their best
WAIT	What Am I Thinking?

Introduction to Debriefing

1

Abstract

Debriefing is a crucial aspect of simulation-based educational interventions in healthcare. This section of this pocket book aims to clarify what debriefing is really about and why it is such an important aspect of the learning process for everyone involved: participants, simulation observers, and facilitators alike. It also places emphasis on the aspect of briefing as a phase that sets foundation for a successful debriefing so learners understand the approach adopted and what will be expected from them during that phase and its purpose. The many other critical aspects around the practicalities of debriefing, which are "the what, who, when, where, and how to debrief", are individually explored to provide clear advice with support of relevant references. Of notable importance in this section is the clear description of the most common education performance review approaches (directive feedback, plus/delta, after action review, structured debriefing, etc.) so the most appropriate one can be selected depending on various parameters such as the learning objectives being addressed, the level of expertise of the participants, and the time available.

1.1 Definition of Debriefing

Debriefing can be seen as a facilitated reflection encounter based on an experiential learning episode (Fanning and Gaba 2007). More precisely, debriefing is a facilitated "post-event analysis" encounter also generally defined as a "learner-centred technique, non-offensive, in order to help a professional or a team to improve one's performance by a reflective practice" conversation (O'Donnell et al. 2009). We should acknowledge that the "learner-centeredness" may be dependent on the type of activity being debriefed, the learner type and their culture, and the actual purpose of the debriefing. It is a very valid process to engage in with participants following any type of simulation or learning activity irrespective of the modality adopted

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(Alinier 2007), highlighting the fact that they do not necessarily have to be experienced as the aim might be for them to actually gain experience from undertaking the activity and through a directly or indirectly guided reflection process. The notion of direct or indirect guidance can be defined as depending on whether or not someone is facilitating the process or if learners are relying on a model or framework provided to them for self-debriefing, auto-feedback, or peer feedback. Depending on the debriefing approach adopted, the process may help uncover mental models to which behaviours and cognitive reasoning can be attributed to. These can then be corrected or enhanced to improve future performances.

The most common debriefing processes involve "the active participation of learners, guided by a facilitator or instructor whose primary goal is to identify and close gaps in knowledge and skills" (Raemer et al. 2011). The level of facilitation or degree of involvement of the educator or mentor depends on a number of factors which will be considered mainly towards the end of Sect. 2.6. Real-life events can as much form the basis of a debriefing as a planned experiential learning episode, although the circumstances, organisational culture, and implications may impact very differently on the dynamics and openness of the discussion, but this is not going to be the focus of this book.

Debriefing is potentially a very powerful and effective communication exercise aimed to improve performance (Levett-Jones and Lapkin 2014). It predominantly remains an asymmetrical communication process between a facilitator and a learner, whereby one is often perceived to know, and the other one learns. This is why the quality and type of interaction between the debriefer and the participants at the time of debriefing are crucial for the learning process to occur effectively. There is a correlation between the competence of the debriefer perceived by the learner and the perceived quality of the simulation experience (Helmreich and Wilhelm 1991). Debriefing is a complex task, full of psychological and educational nuances that are too often underestimated and can potentially significantly affect its educational impact.

It is said that the debriefing component is an essential part of the simulation learning process that should never be omitted (Rothbeg 2008) or even that "simulation is the excuse for debriefing" (Gardner 2013; Weinstock 2013); therefore simulation should never exist without some form of debriefing! Other debriefing proponents state that "simulation without including adequate debriefing is ineffective and even unethical" (Kriz 2008). According to Dieckmann et al. (2009), "the post scenario debriefing is important to maximize learning and facilitating change on an individual and systematic level, modifying for the better one's attitudes, perceptions, behaviours, actions or technical skills, or the organization's culture, policies, procedures or operational mechanisms", or even that "without a post-event reflective process, what the participants have learned is largely left to chance, leading to a missed opportunity for further learning, and making the simulation encounter less effective" (Motola et al. 2013). At the very least, some form of feedback needs to be provided to learners as is often the case with computerised or virtual reality task trainers and screen-based simulators (Kowalewski et al. 2017; Perkins 2007).

Although readers may find other contextual applications, the focus of this pocket book will be around debriefing in an educational context, following mental or full-scale scenario-based simulation sessions rather than following purely skill-oriented training sessions and real team or patient care events.

Furthermore, we will refer to "learners" to encompass the observers and scenario participants involved in the debriefing. Individuals who are or have been involved in a simulation scenario in particular will be referred to as "participants" at any stage of the simulation session. Other terms that will be regularly used in this book in contrast to the learners are the "faculty" in their various roles of the educational process supporting learners. In our view, the "educator" is the broadest term relating to the individual whose primary concern is the development of another individual while taking into account the learners' needs and preferences into consideration. Then comes the "instructor" who generally adopts a less learner-centred approach to teaching and who will primarily be involved in skill-based simulation activities. Another commonly used term in simulation-based education is the "facilitator" who helps providing the learning opportunity or context to the learners without being seen in an instructor capacity but rather as an enabler of learning. In that sense, the "debriefer" is a "debriefing facilitator" to diminish any potentially perceived position of authority.

1.2 The Place of Debriefing in Learning

In an adult learning process, debriefing needs to have a prominent position as it helps people reflect on their actions and thinking. It has the potential to help them develop and improve as professionals irrespective of their domain of practice. This is due to the fact that the adult learner already has experience and habits (right and wrong). Deepening reflection with the support of a facilitator generally makes it an easier process promoting learning rather than when expected to occur autonomously. Reflection is a conscious consideration of the meaning and implications of actions compared to pre-existing frames and assumptions. A facilitated reflection theoretically provides the best learning opportunity (Decker et al. 2013) for the "subjects" and the other learners, including the facilitator(s) themselves.

Although it might not always be exactly as per this description, Gardner (2013) positions debriefing in learning this way: "Debriefing is a lynchpin in the process of learning. As a post-experience analytic process, debriefing is a discussion and analysis of an experience, evaluating and integrating lessons learned into one's cognition and consciousness. Debriefing provides opportunities for exploring and making sense of what happened during an event or experience, discussing what went well and identifying what could be done to change, improve, and do better next time". On occasions, debriefing episodes may occur during the event—which means after a short period of time of engagement in the simulation experience—as will be presented in Sect. 3.4.

Numerous studies and systematic reviews provide evidence demonstrating that debriefing increases performance in simulation-based education (Cheng et al. 2014; DeVita et al. 2005; Dine et al. 2008; Falcone et al. 2008; Levett-Jones and Lapkin

2014; Morgan et al. 2009; Savoldelli et al. 2006) and promotes adhesion to recommendations in clinical practice (Wayne et al. 2008). Debriefing ranks as the number one element of high-fidelity simulation in healthcare that leads to effective learning (Wayne et al. 2008) and is considered an essential component in simulation (Mayville 2011). All this literature truly highlights debriefing as a mandatory step after each simulation experience. It is also written in the statement of the simulation standards of best practice: "All simulation-based learning experiences should include a planned debriefing session aimed toward promoting reflective thinking" (Decker et al. 2013).

1.3 Briefing Before Debriefing

1.3.1 The Reasons for Briefing

An important emphasis is recurrently placed on the debriefing phase—where a lot of learning takes place (Savoldelli et al. 2006); therefore there is often a lack of appreciation on the fact that the participants need some form of briefing before taking part in the more exciting and hands-on simulation phase that precedes the debriefing. This—combined with the general underestimation that both the briefing and debriefing phases require preparation on the part of the facilitators—may ultimately lead to a suboptimal learning experience for the participants.

Briefing in the context of simulation in healthcare education can be defined as a period of time when information relating to an event or a task and the context in which it takes place are relayed to someone in order to transmit a better understanding of what will be expected during the simulation experience. It sets the stage and hence needs to be well planned (Lioce et al. 2015). Briefing can be described as a three-phase process.

The first briefing phase focuses on the overall learning experience by informing participants of the simulation session process, the broad session learning objectives, setting up engagement ground rules, expected behaviours, confidentiality of the experience, what support they may request and obtain, what they can do or only pretend to do (e.g. drawing blood, sending blood samples for culture, requesting for an X-ray, etc.), what are the limitations of the simulation, how scenarios are usually ending, if the patient may die irreversibly, as a result of their inadequate actions or never regardless of what they do, and how the debriefing process will occur and who takes part in it. These elements may also be called the "pre-briefing" phase and are then followed by an orientation phase of the environment, the equipment, and the simulation technology. Then comes the scenario briefing when roles of the faculty as facilitators, confederates, or actors may also be presented (Lopreiato 2016). A graphical representation of the steps of a simulation session is presented in Fig. 1.1 and shows the various parts, most notably the potential succession of scenarios with the corresponding briefing phases and the debriefing.

It illustrates the fact that learners need to be informed that they get "physically" separated into *participants* and *observers* during the actual scenarios, whereby some

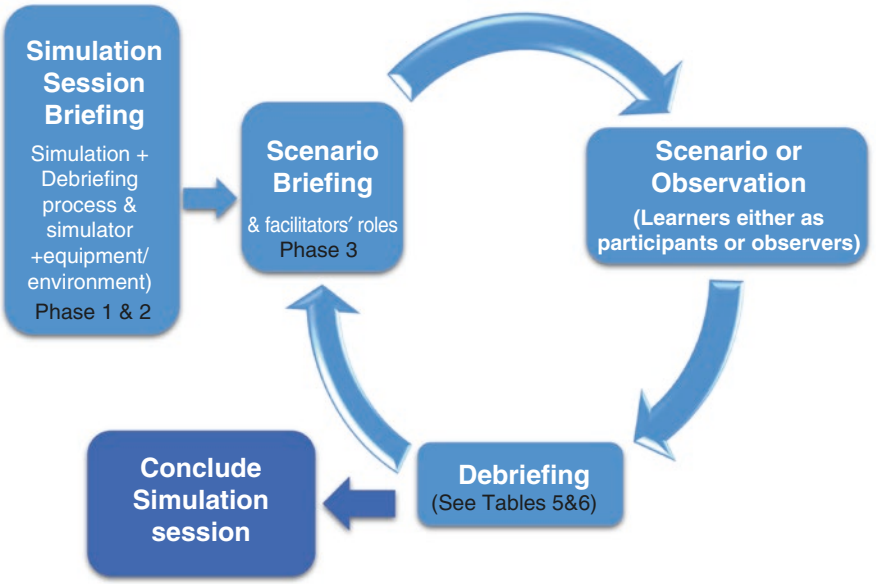

Fig. 1.1 General simulation session process diagram

usually remain in a classroom environment with a live audio and video stream from the simulation environment where the others take part in the scenario. It is important during this first briefing phase to understand the participants' potential fears about the simulation and debriefing, whether or not they have also engaged in such an activity in the past. Participants may be excited about the simulation aspect but still anxious about the debriefing phase. It is usually because of the fear of lacking knowledge, making a mistake, being on the "hot seat", being judged, criticised, blamed, finger-pointed, and humiliated; seeing oneself on the video, etc. In essence, they are unsure about what is about to happen and how they will perform. These anxieties should be addressed during the briefing phase and the introduction of debriefing with adequate reassurance of the participants. One of the key rules relates to confidentiality of the learning experience, whereby everyone should agree that the content of the scenarios and adequate or improper actions of participants should only be discussed in the confine of this session (Arafeh et al. 2010). There may be exceptional circumstances when the confidentiality aspect may have to be overruled (See Sect. 3.7). Other very important and related rules concern mutual respect between and within participants and the facilitators during the scenarios and the debriefings. The facilitator(s) should inform all participants how they can engage in the debriefing in a non-offensive or respectful manner when addressing their peers and who will actually take part from the learners and facilitators' sides. Reminding participants about the broad learning objectives, as opposed to detailed scenario objectives, highlights the experiential learning aspect of the simulation session, whereby it is almost expected that participants will make errors as they do not really know what is going

to happen during the scenario. Revealing information about key scenario events as part of the scenario briefing would partly spoil aspects of the learning opportunity as participants would no longer be required to exercise critical thinking and teamwork as would be expected of them in real circumstances (Alinier 2011).

The next briefing phase is related to the orientation about the equipment and, if not an in-situ simulation session in the participants' usual working environment, the scene of the simulation environment as many elements may differ from what participants could expect in terms of appearance, layout, and functionality. The equipment orientation usually covers the simulation technology or patient simulator (which can also be a standardised or simulated patient) and the medical devices (simulated or real) and clinical furniture that differs from what participants may be familiar with. Participants should be reminded to treat the simulator or "patient" with dignity, respect, and professionalism. Regarding the environment, participants will need to be explained what they can access during the scenario and how they can call for help, for example. Both briefing aspects help to set a "fictional contract" regarding the actual learning event that is to follow and encourage participants to "suspend disbelief" regarding potential limitations of the simulation (Dieckmann et al. 2007). There are always limitations to a simulation scenario in the interest of time, cost, feasibility, resource availability, or convenience, and acknowledging this puts the participants in the right frame of mind to accept these limitations with hopefully a minimal impact on the learning process and outcome.

The last briefing phase is specifically related and tailored to each individual scenario and the actual learning experience since information is provided to place participants in a particular context with regard to time of the day for the simulated event, the team composition, and other required details such as prior interventions performed or patient history they might be expected to be aware of (Alinier 2011). It is also a time when roles and responsibilities might be assigned to each participant in the context of the scenario that is about to start. If any of the facilitators have an active role in the scenario as a confederate (embedded in the scenario in a particular clinical capacity) or acting as a relative, it needs to be clarified to prevent any confusion and to manage the participants' expectations of their involvement. The scenario briefing can be given in the form of a succinct handover by a facilitator before participants enter the simulation environment and making sure the observers get at least the same amount of information. At the end of this phase the participants are warmed that the debriefer will use a specific sign or message to end the scenario and that they will be invited to remain silent until the beginning of debriefing.

The initial briefing phases are usually part of a one off "simulation session briefing" (Fig. 1.1) or "pre-briefing and orientation" event to help participants understand how learning and reasoning will take place and how it will be facilitated, and so they do not feel irreversibly tricked since they will be aware they are taking part in a learning event with a patient who is not real but simulated and in an environment or circumstances that potentially differ from their daily routine. These are key preparatory elements to ensure learners are ready for the debriefing phase (Zigmont et al. 2011).

From a psychological point of view, the various phases of briefing are also a period of time when facilitators can establish some form of connection and trust

with the learners or participants (Decker et al. 2013; Lioce et al. 2015; Rudolph et al. 2014). This is particularly important to reduce the stress induced by the process of being observed by facilitators as opposed to the stress induced by the experience or scenario that mimics reality itself. As such, the briefing directly impacts on how the participants engage in the simulation which in turn impacts on the debriefing (Page-Cutrara 2014). It is important to note that the psychological safety of learning needs to be maintained at all times during the simulation session as any behavioural or verbal deviation from learners or facilitators may have a ripple effect on the subsequent phases of the session and even in future simulation sessions.

Simulation provides a unique controlled environment for reflective practice and where errors are allowed to take place, and this should be emphasised with the learners. While making it clear that it is totally appropriate for participants to make clinical or judgement errors during the simulation and that it will be addressed during the debriefing, the "reflection in action" needs to be pointed out to participants by requesting from them to think out loud during the key decision-making moments, so observers and facilitators can understand their thinking process or mental frame and actions (Burbach et al. 2015). It is also important to ask them to clearly verbalise potentially critical actions such as concentration or dose of a drug or other therapy they might be administering, so the course of the scenario or patient physiological response matches their actions. We are not implying actual "time-outs" (or in-simulation debriefing) sometimes used for educational purposes (i.e. for novices) with a facilitator (see Sect. 3.4) but for participants to make a conscious individual effort to verbally share their thoughts, which will not only be heard by the observers and facilitators but also the other scenario participants.

To guide learners in the reflective process in all stages of a simulation session (before, during, and after), a reflective simulation framework (RSF) has even been developed for use in a primarily healthcare undergraduate context (Jones and Alinier 2015). These points affirm the need to set an environment of trust and respect between the participants and the facilitators during the briefing phase, and it is one of the core elements of the standards of best practice regarding simulation design (Lioce et al. 2015) as it contributes to learning. Table 1.1 presents the key aspects of the three-phase process of briefing to guide facilitators regarding what needs to be explained to participants.

1.3.2 The Potential Issues of Not Briefing

In a simulation-based learning process, the debriefing phase can be significantly influenced by the briefing phase itself since the information that is provided normally minimises the number of assumptions that participants and learners have to make during the simulation session. As we have discussed so far, debriefing is a key phase in the learning process. It encourages reflection and is in a way a very special event for learners as they get engaged in a discussion process to explain their frames or thoughts and actions and may directly or indirectly receive feedback about different aspects of their performance. This way they can improve by reinforcing their good judgement and professional skills and potentially realise what they need to unlearn or modify in their practice.

Table 1.1 The three-phase process of briefing

Briefing phases	What is presented to learners	What is expected from learners
Phase 1: simulation (pre-briefing)	Emphasise it is a learning experience Structure of the simulation session: briefing, simulation, debriefing Place of errors in the learning process Expectations regarding engaging in the scenario and thinking aloud What they need to actually "do" (as opposed to pretend): actions have to be performed, thoughts have to be verbalised, etc. They can be asked if they have had prior simulation exposure and how they feel about it Specific sign for the end of scenario. Request from participants not to communicate at the end of a scenario until everyone is ready for the debriefing Safety: confidentiality and benevolence Reassurance and release of anxiety Rules: trust, confidentiality, and respect Broad learning objectives	Share their concerns Trustful and respectful behaviour Willingness to engage in the simulation as if they were taking care of real patients
Phase 2: simulator and its environment (orientation)	Location Description of simulator or model and its features, realism, and limitations (fictional contract) What is possible to assess and what is not possible to assess on the mannequin or simulated or standardised patient. What they may have to request (capillary refill, skin appearance, etc.) Technical environment and what works differently from what they could expect What equipment they can or cannot access Potential support: phone, rescue team, etc.	Touch and test the simulator (listen to auscultation sounds, feel pulses, etc.). Explore the environment and check medical equipment, contents of the crash cart and other items available, etc. Professional engagement (fictional contract)
Phase 3: scenario (differs for each scenario) (scenario briefing)	Setting or clinical scene at present Time of the day Patient history (if it is to be obtained as one of their learning objectives) Introduction of facilitator(s) and their role in the simulation and in the debriefing Instructions in the scenario Instructions regarding potential need for help Assignment of different roles in the team, if necessary. Clarifications regarding the roles of facilitators if they are involved in the scenario	Listen to the scenario handover Engage with the team members (peers and/or confederates) Assume a role as part of the team taking part in the scenario Observers need to attentively follow the scenario

Not facilitating a briefing with learners before a simulation experience can be as detrimental as not facilitating a debriefing. The learning experience could be jeopardised, which would deprive participants and observers from some of the most important aspects of a simulation session, especially when complex situations arise. The briefing helps clarify assumptions participants may otherwise have to make regarding expectations facilitators have of them about actually performing clinical procedures or not. As such they may decide to simply pretend or verbalise actions as opposed to actually doing them, and when the simulation becomes very active, this may lead the facilitators and observers to believe expected actions have not been performed. In turn, this may be detrimental to the running of the scenario as the patient could, for example, carry on deteriorating as the facilitator may have not seen a participant pretending to perform an expected action such as giving a fluid challenge or administering a drug or oxygen to the patient.

The only occasion when briefing may be almost entirely omitted is when simulation has become routine for the learners or participants, for example, if simulation is run very regularly (e.g. weekly) in a patient care unit (in-situ) as an ongoing educational activity for staff and they have already been oriented to the process on earlier occasions. Another example where briefing may be almost skipped (for the second and third scenarios) is when the instructor uses a rapid cycle deliberate practice with three simulation scenarios in a row with only slight changes in complexity as it trends to the third scenario (See Sect. 3.8 for a related approach).

1.4 Purpose of Debriefing: What to Debrief About?

Debriefing is a key component of simulation-based education (Fanning and Gaba 2007). The purpose of debriefing is to engage learners in a reflective discussion about the participants' performance in relation to the learning objectives around which the simulation experience has been designed, enriched by other important points or events that may have occurred. There is no debriefing or any other form of feedback without predetermined learning objectives for any given simulation-based intervention or experience. Even a task as simple as stacking small cubes on a basic laparoscopic simulator is underpinned by some learning objectives, and learners should receive feedback regarding at least their technique and the time it took to complete the exercise.

1.4.1 When to Choose the Debriefing Objectives to Discuss?

At the very end of a simulation, the facilitator or debriefer has to have in mind what they want to debrief about. There is not much time to decide what has to be debriefed (2–3 min maximum), but it should be based on the scenario learning objectives and the performance of the participants. This emphasises the need to select the most appropriate scenarios for the participants based on their learning needs, and this usually takes place in a "pre-simulation huddle" with input from faculty who know the learners'

strengths and weaknesses as well as the learning needs linked to their curriculum. That means that along with these pre-identified learning objectives that are normally expected to be debriefed, elements of their own observation of the simulation can be considered as important points that should be discussed during the debriefing. These points should be noted while the scenario is running to save time at the end to briefly correlate the notes during a "mini Post-simulation facilitator huddle" and agree on the key learning objectives to be discussed. It is also advised that time can be created by running a short period of "steady state" in terms of the patient condition before ending the scenario (Cheng et al. 2015b). In addition, some additional points may unexpectedly emerge as key learning objectives during the actual debriefing and warrant being fully debriefed.

1.4.2 What Is the Content of the Debriefing Objectives?

The rationale for choosing what has to be debriefed is based on the observation of gaps in performance from the team or particular participants during the simulation and prioritisation of the identified topics. This means that the learning objectives may not necessarily be considered as the key debriefing objectives, especially if some other gaps in performance leading to critical errors have been observed. It is interesting to notice that debriefing objectives can be completely different from the scenario-intended learning objectives originally selected to be discussed if these were correctly fulfilled during the simulation, while some other gaps in performance concerning patient safety issues may have been noticed and hence need to be explored. As such one needs to consider the notion of "learner-centred debriefing" (Cheng et al. 2016b), whereby the debriefing points identified during the scenario development phase do not have to be rigidly adhered to, and other points can instead be discussed if judged more important for these scenario participants or all the learners attending the simulation session. One should however always consider if by focusing the debriefing objectives on a specific scenario performance by a small team of participants (or an individual), it may cause for originally identified learning points not being discussed at the detriment of the other learners. A point that may be very important to discuss in depth with a scenario participant may be very trivial to the other learners, and vice versa. By the end of the overall session, the learning objectives discussed may have deviated so much from the intended focal points that another simulation session may have to be scheduled! It may be that the debriefing ended up focusing on the clinical management of the patient from a pharmacological point of view (due to an unexpectedly identified gap in knowledge), whereas the intention, from a program or curricular point of view, was primarily to cover teamwork and communication aspects, so it still would need to be remediated through another session. To avoid such issues, it is sometimes necessary that the few learners concerned by a specific debriefing learning point be invited to wait until the end of the session for the discussion to be continued or be directed to an appropriate reference, so they can address their gap autonomously. Such reference may be part of the scenario or simulation activity design template (Alinier 2011) and is being referred to as the

"toolbox" as it is meant to contain useful information relevant to the scenario, and it is presented in more details in Sect. 2.9 of this book.

Debriefing objectives deal with knowledge, technical skills, as well as behaviours and attitudes. If it is a multiprofessional team taking part in the simulation, it is important to discuss debriefing objectives that can involve most of the team, such as "communication"—if indeed communication could have been improved during the scenario. The risk would otherwise be to focus solely on technical skills objectives that would only involve one particular discipline.

The observer(s) who will debrief the participants after the scenario is played have an intrinsic non-perfect observation—like any human being—due to the human brain functioning with intentional blindness (Chabris 2017) and urge for interpretation of actions (Youtube 2017).

Therefore, paradoxically there is also some room for finding debriefing objectives while beginning the debriefing itself, after the scenario observation. Most of the time, it happens during the "reaction phase" (venting of emotions), as emotions can be created by distortion of teamwork principles, i.e. poor distribution of tasks among the team members by the leader, generating a feeling of frustration for some. If the faculty observing the simulation (maybe a future debriefer) has not picked up this point during the simulation because they were focusing on a technical aspect of patient management, the venting of emotions during debriefing can alert them that there is a non-technical point to be debriefed, such as communication. Sometimes it happens during the debriefing "description" part at the beginning of the analytic phase (see Sect. 2.4) when a discrepancy of the understanding of the case diagnosis between the team leader and the members becomes apparent. Finally, it can also occur later on when the debriefer asks participants what difficulties they faced, if the debriefer did not notice a specific point just brought up by the participants.

This possibility of gathering debriefing objectives "even" during the beginning of the debriefing, once the observation of the scenario is finished, forces the debriefer to stay relaxed, with an open mind, and to carefully listen to what is said, paying special attention to what the most junior participants have to say.

Among observations of gaps in performance, non-technical skills have a major importance. Human factors (Carayon 2011; St. Pierre et al. 2011) and Crisis Resource Management (CRM) principles (Gaba et al. 2001; Howard et al. 1992) are emerging discussion points in all simulations. The aspects of human factors that are often discussed during debriefings relate to the interactions of each of the participants with the following elements: procedures, guidelines, and protocols, equipment (ergonomics, handling technique, functionality, etc.), environment (ergonomics, acoustics, layout, etc.), and the patient, team members, and the relatives (communication, teamwork, leadership, situational awareness, mutual support, decision-making, practical and cognitive skills, etc.). These often lead to errors or near misses and hence pause a threat to patient safety which is generally attempted to be addressed through CRM training (Helmreich and Davies 1996).

Pointers to identifying debriefing points are presented in Table 1.2, and some of the most commonly identified CRM issues related to the non-technical skills aspect of human factors are described in Table 1.3.

Table 1.2 Identifying debriefing objectives

When to identify debriefing objectives?		
During the simulation		During the debriefing
Facilitators' observations of gaps in performance (cognitive, technical, and behavioural) from individuals or the whole team or plus/delta notes from observers (see Sect. 8.2 and Table 1.5)		*Reaction phase*: release of specific emotions among some members, indifference, frustration, failure, blame, anger, etc. *Description part*: discrepancy of diagnosis between leader and team members *Difficulties recall*: revealing points unseen during the observation of the scenario
Related to scenario learning objectives	Unrelated to scenario learning objectives	Suspicion of a dysfunction of teamwork principle (reaction phase and description part) Technical and non-technical skills issues (difficulties recall)
Choose three to four gaps in performance that are the most important to "close" or address, with the highest potential benefit for the patients, and taking time into consideration		

Table 1.3 Crisis Resource Management principles and associated attributes required from team members

Role clarity/ leadership	Staying calm ("10-seconds-for-10-minutes principle" (Rall et al. 2008) as deciding on allocation of tasks and re-evaluating regularly); leader and members as helpers; the leader assigns team roles and asks for active participation; the leader involves everyone in the decision-making process
Communication	Addressed or directed verbal and non-verbal communication by all team members; closed-loop communication and use of feedback to ensure messages and requests are correctly understood, transmitted, and actioned
Problem-solving	Recognition of the issue(s) and organised and efficient problem-solving approach. Ability to consider and implement alternative solutions in a crisis situation, including proper use of resources
Utilisation of resources	Appropriate use of competencies among team members, places for work, and time of actions. Appropriate use of technical support. Conscious of limitations and early call for help and early anticipation of specific needs. Prioritises and delegates or reallocates tasks as appropriate
Situational awareness	The leader thinks aloud; verbalisation of the assessments made, observations, and the decisions taken. Avoid fixation errors and anticipates potential events, providing mutual support. Reassesses and re-evaluates the situation constantly

Adapted from Hicks et al. (2012)

CRM principles are particularly important aspects to emphasise as the acquisition of such knowledge through simulation has been proven to increase their application (Hicks et al. 2012) and to benefit patient care (Boet et al. 2014). CRM points can be raised in such a way that forces everyone to question their own behaviour, interaction, and contribution to the team's efforts.

Anyhow, the number of gaps in performance noticed during a simulation can rapidly exceed the capacity of the allocated time for debriefing and of the learners to take on so many messages and learning points. It is convenient to prioritise them and choose three to four major points to debrief. Otherwise the benefit of debriefing

might be impaired as learners may become overloaded with learning points and retain none or not the most important ones. In terms of learning theory and the work from Miller (1956), 7 ± 2 appears to be a key number so as not to exceed one's working memory capacity. Information overload will diminish learning efficiency from our working memory (Clark et al. 2011). In all cases it is important to check at the end of the debriefing if the major points that have been debriefed are retained during the verification of closure of performance gaps (see Sect. 2.8).

In a case of numerous gaps in performance, what is to be chosen for debriefing?

One normally chooses gaps in performance related to the learning objectives of the simulation scenario as they are probably the most critical, but one can also seek the gaps that appear to be the most important to close that would give the best benefit for a patient or that the participants really want to discuss. For example, if what has been observed is a poor securing of an endotracheal tube (ETT) and a poor handling of the laryngoscope, even if the intubation was successful, it seems more important to debrief about the poor securing of the ETT, as it involves the whole team and has consequences on further intubations (with the risk of extubation of real patients), than the handling of the laryngoscope. This latter point could be solved by inviting, at the end of the debriefing, the participant who performed the intubation to return later on to the training facility, so they can practise under expert supervision on a task trainer. It might also be useful to update this particular scenario toolbox with evidence-based references concerning intubation techniques, so it can readily be shared with learners who may require it.

In any case, do not drown the participants with too many debriefing points as they will not remember everything. Information overload could even be detrimental to them remembering the few most important points.

1.5 Who, When, and Where?

1.5.1 Who?

The participants of a debriefing include the debriefer(s) who should be properly trained to facilitate a debriefing (Decker et al. 2013), the learners who took part in the simulation, the facilitators, the confederate(s), actors, and sometimes peer learners. These peer learners will usually have been remotely observing the scenario from a nearby room with a live audio and video streaming of the simulation-based activity as direct observation can otherwise be quite distracting and intimidating. All the participants of the simulation activity, and generally also the observers, must be included in the debriefing process as well as the key facilitators of the scenario.

It is important that the debriefer has previously explained the rules of debriefing to the participants and observers. The common points are: not discussing about the scenario once it is ended until everyone is ready for the debriefing, raising hand for questions, being respectful, causing no offense, asking "why did it happen this

way?" instead of criticising participants, and honouring the confidentiality of all that will be discussed. It might be interesting to keep the observers in an active role, either with an individual plus/delta sheet (see Sect. 1.8.2) that they would need to complete during the scenario and debriefing and that could be collected later to assess misunderstanding and other gaps from the observers' perspective, or by assigning different roles to two groups of observers—think alone or with a peer—and finally respectfully share their observations (Angelo and Cross 1993).

It is recognised that one of the key elements to the success of simulation programs is the appropriate training of the facilitators in preparing and running the scenarios and facilitating the debriefing, so the participants do not feel depressed or ridiculed about their performance (Leigh 2008). Another key aspect is for the debriefers to have carefully observed the whole scenario being undertaken by learners (Decker et al. 2013), so they can facilitate the debriefing and make observations in a more informed manner as opposed to being blind as to what actually occurred. It would be very difficult for a debriefer totally reliant on the participants' narration to adopt an advocacy-inquiry approach. The "second-hand observations" upon which they would anchor their questions may be inaccurate and debatable, which could be counterproductive to the debriefing process.

In some occasions, debriefing can be practised without the external guidance of a facilitator who observed the performance; this is then a team self-debriefing. It could be also a peer debriefing (like the team-guided plus/delta; see Sect. 1.8.2). It can be proposed when there is a time issue or shortage of supervision, but this type of debriefing is less potent to let emerge all significant gaps in performance because of the lack of independence between the actors and the observers, potential bias, or that learners can themselves appropriately identify issues and commendable actions.

1.5.2 When?

The best time to debrief participants is generally immediately after the simulation has ended (Gardner 2013; Waxman 2010). As we have already seen, short feedbacks during the scenario (time-outs) can be proposed in specific situations (see Sect. 3.4). It is also important that the facilitator who will lead the debriefing asks the learners to remain silent from the end of the scenario until they are all comfortably seated and ready for the debriefing in order to prevent them from sharing their first impressions and reactions (valuable and significant words) only privately. In fact, these important words, which the debriefer(s) might not hear, very frequently refer to emotions, and they might not come out easily during the "public" reaction phase if they have already been divulged in private. As a result, the debriefer would miss the report of important feelings and pieces of information that are usually linked to gaps in CRM principles or other human factor issues.

Blaming lack of time to perform an immediate debriefing is not really an acceptable excuse as a lot of the learning could be lost, and trying to postpone the debriefing to reconvene all learners at a later stage might be very difficult to achieve.

Another approach that might be used with less experienced learners or experienced learners unfamiliar with a particular technique or procedure is "within-event"

or "within-scenario" debriefing which promotes reflection in action and hence mastery learning (Eppich et al. 2015) and will be discussed in more details in Sect. 3.4.

Special occasions require special measure, so in the case of a very large-scale, multi-agency mass casualty incident simulation, there is generally a series of debriefings all involving different stakeholders and participants. This may take place over a relatively prolonged period of time until the debriefing reports from the various agencies are transmitted to the main stakeholders who will ultimately run an overall debriefing with the key players who in turn will be able to relay relevant debriefing points within their own organisation for corrective measures to be adopted. This may include training or training or staff, changes in major incident response plans, or acquisition of new equipment to only cite a few examples.

1.5.3 Where?

It is better to have the debriefing held in another room than in the room where the simulation took place. This favours the splitting of the two different roles of the learners who were participants in the scenario in a caring capacity of a patient and now are encouraged to reflect on the events of the simulation and their own practice. It should also be an environment that is more comfortable. This "derolling" is often an underestimated aspect of simulation-based education (Stafford 2005) and can also be partially achieved by taking off the specific "costume" worn during the simulation (gowns, coats, scrubs, etc.) before the start of the debriefing. If it involves going into the restroom to take off OR scrubs and changing clothes, it is better for participants to keep their "costume" on and start the debriefing as soon as possible. Allowing participants to get changed before the debriefing could be a mistake as it would give them opportunities to talk to each other prior to the reaction phase of the debriefing. This would potentially be detrimental to the reaction phase as discussed in Sect. 1.5.2. For debriefing, participants and facilitators should be seated, at ease in a circle (Mitchell et al. 2003) to remove any position of authority or scrutiny for all involved. Some centres offer snacks and refreshments on a central table around which everyone is seating for the participants and observers to feel comfortable. Though it does not represent any type of reward, it relaxes the atmosphere and enables everyone to eat or drink something while still being engaged in the discussion. If refreshments and snacks are offered in a different location, it may delay the debriefing process and encourage side discussions which could also be detrimental to the reaction phase of the debriefing.

If it is impossible to provide such an environment, debriefing should nevertheless be performed right after the simulation has finished, in the most appropriate setting one can afford for the learners. Although more research is needed in this particular domain, the physical environment overall impacts on cognitive load and is a determinant for learning and performance (Choi et al. 2014). It is better to be free from distractive elements such as posters, large windows, background noise, and the simulation environment itself, with its patient simulator (or simulated or standardised patient), whether in good or bad shape (in the sense of health condition at the end of the scenario). It is better to do the debriefing in a neutral setting rather

than in the same room as where the simulation was taking place for a number of reasons:

- The participants will keep on looking at the "patient" and equipment and, hence, may not totally focus on the debriefing.
- It will delay the room being set up to start the next scenario immediately after the current debriefing.
- Anyone tidying up the environment while the debriefing is still ongoing would be distracting the learners, so it should be discouraged.
- Everyone will most probably be standing up and not be very comfortable.

In general terms, if a stranger was to only take a snapshot of the debriefing, the seating arrangement should not make it possible to easily determine who is actually facilitating the debriefing. This means everyone should be preferably seating at the same level in a concentric manner rather than in a classroom setting where everyone is turned towards the "instructor" who would be standing up, hence displaying a position of authority or superiority, which is more characteristic of an instructor-centred educational approach and can be intimidating to the learners.

1.6 The Debriefer and Co-debriefer

The importance of preparation and skills mix among the team facilitating every aspects of a simulation session, including debriefing, is emphasised in a paper by Lambton and Prion (2009), and the key attributes of a simulation facilitator are further emphasised in a simulation standards article (Boese et al. 2013). Ideally, simulation facilitators need to possess educational, clinical, and technical expertise but also some human qualities that make them approachable and good communicators. "The art of debriefing" relies on the personal communication skills required from the debriefer(s). Debriefing can be counterproductive if the communication technique used is too harsh, rude, or perceived as offensive or authoritative to the participants. It could then become a negative learning experience in the sense that it may reinforce poor clinical or professional practice, decision-making, judgement, or teamwork. The pitfall is that participants could be made to take a defensive stance rendering them difficult to engage with and be in denial of any further remarks or feedback. This highlights the crucial importance of the good use of communication techniques in order not to offend participants.

Unlike in the traditional classroom teaching context, to avoid the pitfall described, the debriefer(s) should position themselves as co-learners (Cho 2015), that is, "seating among them" rather than in front of them, higher, or standing, and facilitate the debriefing in an exploratory manner instead of lecturing them. The concept of facilitation stems from education and psychology, whereby one member of the group, the "facilitator" (debriefer in/of our situations), uses open-ended questions, positive reinforcement, cognitive aids, and audio-visual capabilities to help others analyse, synthesise, and evaluate issues and extrapolate and apply lessons learned to future situations (Fanning

and Gaba 2007). The debriefer(s) should be trained to facilitate the debriefing process and regard learners as intelligent, competent, willing to do their best, wanting to improve, and individuals who are open for learning (Kolbe et al. 2015). This however may not help address all the potential demands exercised on a debriefer as the participants' performance may call for a greater emphasis on the exploration of team dynamics, whereas the debriefer might be more of an expert in the clinical domain. This is one of the possible situations when a co-debriefer, generally with a slightly different domain of expertise or preference, can be a very useful asset (Cheng et al. 2015b).

Having a debriefer and co-debriefer duo is also the best way for debriefing a multiprofessional team as they can at least represent two of the key healthcare professions involved in the scenario. This duo and the way it will function should be anticipated from the time of planning the session to ensure a cohesive experience for the learners (educational approach, scope of topics to debrief—technical vs. non-technical, medical vs. nursing—or any of choice) and prevent any faculty scheduling issues. The important point is that both the debriefer and co-debriefer should agree in advance on what type of technique, approach, and educational strategy they will use, including the non-verbal communication between each other. This provides them with a way of "authorising" each other to speak by a special signal they agreed on. This technique is useful as it ensures the debriefers do not interrupt each other's approach when addressing a point with the participants by either filling in for the information they are trying to extract from the learners or to move on to another topic ahead of time. Then they need to determine what will be the main objectives of the debriefing before starting it, based on their knowledge of the intended scenario learning objectives and of their observation of the participants' performance. This means that they should rapidly agree, just before the debriefing, on the performance gaps they need to cover, whether it should totally replace or simply complement original scenario learning objectives, and how the gaps can be best addressed through debriefing.

Debriefing is like a complex "neuronal dance" and needs every mind to be 100% focused. Any interruption could mislead and compromise the debriefing. Clearly this shows that there are not only benefits to the co-debriefing approach and that it can present a number of challenges (Cheng et al. 2015b). Anticipated benefits and drawbacks of a co-facilitation process to run a debriefing are listed in Table 1.4.

Debriefers have to create a positive, non-threatening, and respectful learning atmosphere, where learners can trust that what will happen during the session will remain confidential. As such the "good cop, bad cop" approach is probably not the best approach to be implemented literally. Utilising a circular seating formation with all learners and facilitators as co-learners at same eye level is the correct way of engaging in this activity in an inclusive manner. We recognise, however, that adopting the optimal seating arrangement is not always feasible as the number of participants combined with the observers may be too important (see Sect. 1.5.3). According to Weimer's thinking, reframing the instructor's role from sole leader to "fellow traveller" in the quest for knowledge is an important paradigm shift (Cheng et al. 2016b). Similarly, it is said that non-verbal gestures and facial expressions that demonstrate interest to learners help promote discussion and reflective learning, while negative body language and facial expressions can become a barrier. In that

Table 1.4 List of potential benefits and drawbacks of facilitating a debriefing with a co-debriefer

Co-debriefing benefits	Co-debriefing drawbacks
– Debriefers may have complementary debriefing styles, hence making the activity very engaging – Debriefers may have complementary expertise and experience – Having two debriefers brings additional viewpoints about the case being debriefed – One debriefer can prevent the other one to forget asking questions to a participant or a confederate, because of the important cognitive load on him/her for running the debriefing – Debriefers can support one another when the debriefing is difficult and gaps need to be filled – The other debriefer can contribute by providing clarity through rephrasing the other debriefer's point when confusion persists among learners – The other debriefer can cross-check learners' understanding of the points being addressed, ensuring performance gaps are properly closed – Allowing for a second debriefer to contribute to the debriefing helps with faculty development as a new debriefer can acquire experience through observation or supervised debriefing – Debriefers can represent two of the professions taking part in the simulation-based activity, especially when dealing with multiprofessional teams of learners – One of the debriefers can keep track of the time and of the learning objectives which have been covered or still have to be addressed	– Can result in a poor learning episode if there is not a good coordination between debriefers – Both debriefers may use debriefing approaches that are incompatible – Lack of joint preparation may lead the debriefers to not work in harmony and with a shared mental model of learning objectives to be addressed – Potential for power struggle, dominance, or disagreements between the debriefers – Disagreement between debriefers on the performance gaps to be addressed if they do not have a plan as to what each would like to cover in the given timeframe – Competition between debriefers to cover the points they value more due to personal interest or agenda or professional bias in the case of an interprofessional simulation-based activity – One of the debriefers may be silent and hence cannot be relied on to take the role of co-debriefer – One of the debriefers does not allow the expertise or strength of the other debriefer to be fully exploited – Debriefers may interrupt one another or the learners, giving them little opportunities to express themselves – Both debriefers represent the same professional group of learners and neglect learners from other professions – Using two debriefers may be perceived to be highly human resource intensive – The use of two debriefers might be perceived as too much "educational force" facing a unique participant or a couple of learners

respect, the non-verbal communication used between debriefers needs to be judiciously chosen to be perceived as being neutral and discreet.

In order to promote the success of a debriefing run jointly by two debriefers, Cheng et al. (2015a, b) have proposed the use of co-debriefing checklist, a tool whose application is further explained in Sect. 3.2. Most of the points it contains have been described in this section, but many are also applicable in the case of a debriefing run by only one facilitator.

1.7 The Different Debriefing Models and Frameworks

Different ways—more or less structured—of facilitating a Post-simulation educational experience discussion have been developed, and others are still emerging as this practice becomes more commonly adopted in various domains and is the focus of an increasing level of attention.

Several frameworks or models have been proposed (see below), and within each of them, different approaches are possible. There is limited evidence available to guide the use of one approach over any other. Some guidance is provided in terms of when certain approaches may be more useful and effective (Sawyer et al. 2016a). But the facilitators should pick the format and approach they are most comfortable with and that they feel will be the most beneficial to their learners based on the context and learning objectives of the session (Sawyer et al. 2016a).

1.7.1 The Three-Phase Model of Debriefing

A debriefing approach composed of at least three major phases such as reactions, analysis (or understanding), and summary/conclusion can be referred to as a structured debriefing (Gardner 2013; Rudolph et al. 2008). Using a structured approach helps provide clarity to the learners with regard to the debriefing process and will also facilitate better reflection and assimilation (Neill and Wotton 2011).

A structured debriefing must be introduced and closed (Rudolph et al. 2008), potentially making it look like a five-phase process, and take place as soon as possible following the simulated event (Waxman 2010). There is no specific set duration for debriefings, other than they should last long enough to cover the objectives sets and close performance gaps. The duration is also highly dependent on the debriefing approach adopted, which in turn might be linked to the type of simulation activity it follows and the group of learners involved. Hence it requires some flexibility (Decker et al. 2013). Depending on the complexity of the scenario and the number of professions involved, a debriefing generally lasts 20–45 min (Der Sahakian et al. 2015; Donoghue et al. 2011), which is often equivalent to about twice the duration of the actual hands-on or simulation experience (Levett-Jones and Lapkin 2014) or at the very least the same duration of the actual scenario in which the learners took part (Jeffries and Rizzolo 2006; Waxman 2010).

1.7.2 Other Debriefing Models

Besides the recommended three-phase model, other models including the three major phases were published. These include the RUST (Reaction, Understanding, Summary, Take-home message) by adding a phase for "take-home messages" after "summarising" (Karlsen 2013) (Fig. 1.2), GAS (Gather, Analyse, Summarise) (Cheng et al. 2012; Phrampus and O'Donnell 2013), the 3-D model of debriefing (Defusing, Discovering, Deepening) (Zigmont et al. 2011), the Diamond model (Jaye et al. 2015), and the 3-R model of debriefing (Review, Response, Remind) (Thompson 2004) (Fig. 1.3).

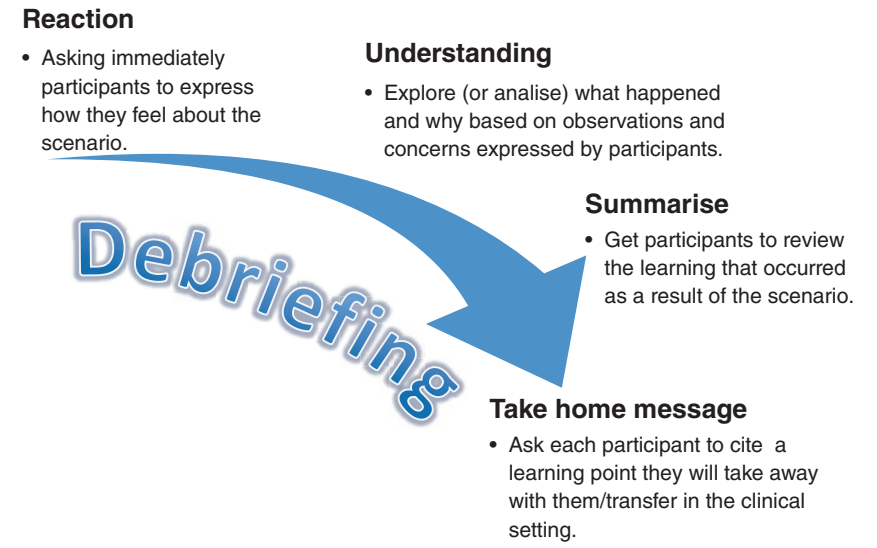

Fig. 1.2 Representation of the use of Karlsen's (2013) RUST model during debriefing

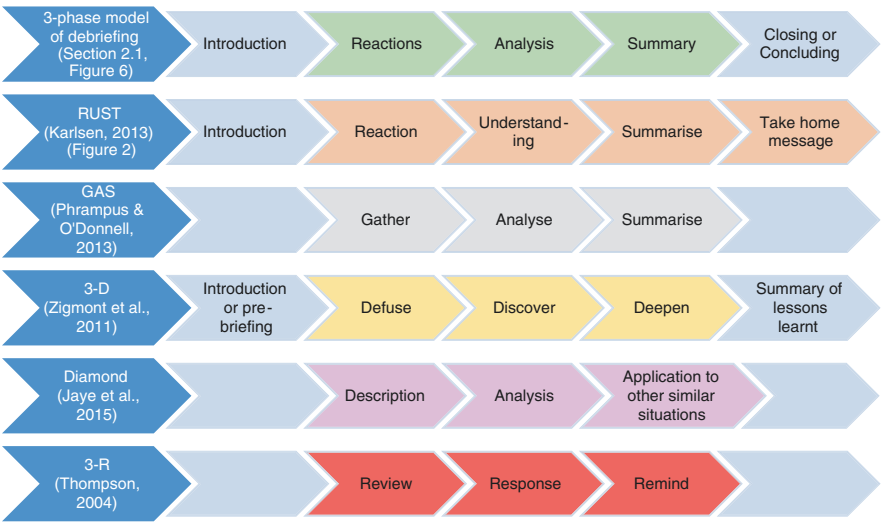

Fig. 1.3 Similarities between the various debriefing models

The GAS debriefing model is described as a "structured and supported" format for Post-simulation debriefing (Phrampus and O'Donnell 2013). A demonstration of GAS is available online as a published video vignette (Wang et al. 2011) and shows that it relies on the debriefer actively listening to the scenario participants, asking clarifying questions to obtain additional information if required (Gathering phase),

interpreting what has been shared (Analysis phase), and getting learners to recapitulate the learning points (Summarising phase) (Blazeck et al. 2016; Cheng et al. 2012).

The model also aligns to the 3-D model of debriefing (Zigmont et al. 2011) which stands for "Defusing-Discovering-Deepening" and can also be applied after real and simulated events to encourage learners to learn from their experience. Similarly to the other models previously presented, this model is actually preceded and followed by other critically important phases to the learning process.

The Diamond model for debriefing was first published in 2015 (Jaye et al. 2015). It includes three phases separated by transition steps: phase 1, Description, transition step to reveal the scenario objectives and the expected management of such situation; phase 2, Analysis, transition step for summary; and phase 3, Application to other similar situations. This model does not precisely include a reaction phase although participants are generally asked at the beginning of the debriefing "So, what happened?" and during the analysis "How did that make you feel?".

The 3-R model of debriefing apparently originated from the International Critical Incident Stress Foundation (ICISF 2017; Thompson 2004). The "Review" phase includes questions such as "How did it go?" "How do you think you did?" "What inappropriate thing(s) did you do?" The "Response" phase is aiming to elicit comments on the self-perception of the team members and any concerns they may have about their performance. The "Remind" phase encourages the team members to remember the things to do (Thompson 2004).

1.7.3 The Multiphase Models and Frameworks of Debriefing

Some multiphase models and frameworks for debriefing have been developed like the Mitchell's model, four Es, GREAT, TeamGAINS, DEBRIEF, LEARN, and DML (Debriefing for Meaningful Learning) (see Sect. 2.5).

Jeffrey Mitchell published in 1993 the Critical Incident Stress Debriefing model (Mitchell and Everly 1993) aiming at reducing stress associated with critical incident experience. It includes seven independent phases: Introduction, Facts, Thoughts, Reaction, Symptoms, Teaching, and Re-entry. Although this model was designed for clinical debriefing, it includes essential steps also applicable to simulation debriefing with an emphasis on emotions and even symptoms.

Relevant to all inquiry-based debriefing approaches, Mort and Donahue (2004) proposed that debriefing should cover the "four Es" (Events, Emotions, Empathy, and Explanations) in the form of a discussion addressing each of these pointers. These are key elements of any scenario-based learning episode as addressing them helps both the learners and facilitators derive a better understanding of what happened. Facilitators should demonstrate empathy to the students by acknowledging that their thoughts and emotions are all valid and establishing and maintaining a psychologically safe but engaging learning environment.

Although not detailing how to conduct a debriefing, Owen and Follows (2006) have proposed the mnemonic "GREAT" as a debriefing checklist for clinical simulation sessions encouraging facilitators to:

- Refer to the most recent best-evidence "**G**uidelines" related to the management of the scenario
- Use "**R**ecommendations" from published reviews in the absence of guidelines
- Give time to learners to reflect on the simulation to identify the key "**E**vents"
- Help learners go through a detailed "**A**nalysis" of the simulation experience and their performance
- Help learners identify what learning they will be able to "**T**ransfer" (or apply) to clinical practice

With the exception of the last letter which can be used during the summary of a debriefing, "GREAT" is not presented in a chronological order for direct implementation. On the contrary, the facilitator will often be required to jump back and forth between the different elements as different parts of the scenarios are analysed. The first two elements of the mnemonic require advance preparation on the part of the facilitators, well-developed and up-to-date scenarios, and information that is readily available to them. The last three letters require learners to think about the learning experience and its implication on their future clinical practice.

By using TeamGAINS, the facilitator guides the debriefing conversation through six sequential steps including:

1. Reactions of the participants
2. Debriefing of the clinical component of the scenario
3. Transfer from simulation to reality
4. Discussion of behavioural skills and relation to clinical outcomes
5. Summarisation of learning experience
6. Supervised practice of clinical skills, if needed (Kolbe et al. 2013)

TeamGAINS integrates several approaches to debriefing the simulation team, including *G*uided team self-correction, *A*dvocacy-*I*nquiry, a*N*d *S*ystemic-constructivist (GAINS) (Sawyer et al. 2016a).

The DEBRIEF framework has been derived to serve as the acronym to help remember the steps of the after action review approach used by the US Army when applied in healthcare simulation. This seven-step framework includes Defining the rules of the debriefing, Explaining the learning objectives, Benchmarking performance, Reviewing expected actions during the simulation, Identifying what happened, Examining why things happened the way they did, and Formalise learning (Sawyer and Deering 2013). This format is unique in its explicit outlining of learning objectives, its reliance of clear performance benchmarks, and the disclosure of what the simulation instructor/facilitator explicitly expected to happen during the simulation (Sawyer and Deering 2013).

The LEARN framework was developed by Sigalet to help trainers organise an effective simulation-based education feedback session. As illustrated in the LEARN framework:

L (learning objectives): the trainers need to revisit the learning objectives in light of the observed performance gaps.

E (emotions): the trainers should ask the learners to express any emotions associated with the simulation.

A and R (actions and reflection): where various approaches can be used (directive feedback, plus/delta, and advocacy-inquiry).

The session ends with step N (next steps): during which the facilitator asks the learners about providing one thing that they have learned from the session and that they would perform next time (Sigalet 2017).

The DML model (see Sect. 2.5) uses six phases for debriefing: Engage, Explore, Explain, Elaborate, Evaluate, and Extend, in an iterative yet consistent process of guided reflection (Dreifuerst 2015). It is associated with specific questions to improve the development of clinical judgement and clinical reasoning skills and has been used with nursing students (Dreifuerst 2010).

1.7.4 The PEARLS Framework

The proposed framework called PEARLS (Promoting Excellence And Reflective Learning in Simulation), by Eppich and Cheng (2015), is derived from the three-phase model to which a fourth phase of "Description" is added between the "Reactions"(or "Gathering") phase and the "Analysis" phase. This framework provides some flexibility with regard to the educational strategy to be adopted depending on the situation, such as the content to be covered (technical/cognitive/behavioural), the time available, and if the rationale for the participants' action(s) is clear or needs to be investigated. In other terms, the PEARLS framework promotes a blended debriefing approach, whereby debriefers can employ several commonly used strategies to discuss the various learning points of a scenario. A simplified version of the PEARLS framework is presented in Fig. 1.4, illustrating clearly the

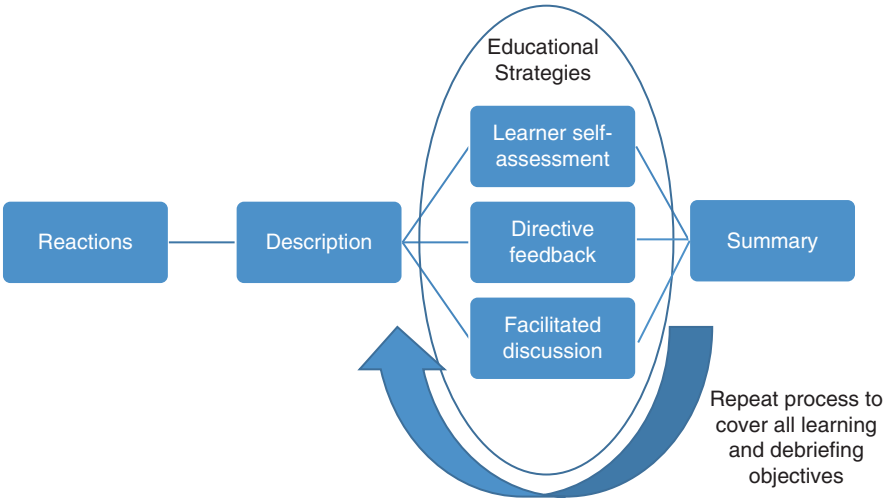

Fig. 1.4 Simplified representation of the PEARLS debriefing framework from Eppich and Cheng (2015)

opportunity for each learning objective to be addressed using either of the recommended debriefing strategies depending on the factors mentioned above. The learner self-assessment can be achieved through a plus/delta process, and the facilitated discussion normally uses an advocacy-inquiry process as it is well complemented by the prior reactions and description stages and followed up by the summary.

1.8 The Different Debriefing Approaches and Communication Strategies

New developments tend to adopt different approaches within the same Post-simulation debriefing phase, including sometimes directive feedback when it is appropriate. Used alone, it would not be a "debriefing" per se, but it can sometimes be included with other forms of communication approaches during the overall debriefing process like in the PEARLS framework (Cheng et al. 2016a) (Fig. 1.4). The key point here is adaptation to the situation, to the participant's behaviour, to the time allocation, and to the types of performance gaps to be closed.

Among the long list of possible methods of communication approaches following an experiential learning episode (Cheng et al. 2014; Dismukes et al. 2006; Monash University 2015; Sawyer et al. 2016b), we chose four of them as they vary in structure and appear in the most recent publications as dominant educational performance review approaches in simulation practice in healthcare: directive feedback, plus/delta, after action review (AAR), and advocacy-inquiry focused facilitation.

1.8.1 Directive Feedback

Literally, feedback is a unidirectional communication approach from the facilitator to learners about their behaviour, while debriefing is a bidirectional and interactive discussion (Sawyer et al. 2016a).

Although often used interchangeably (Ker and Bradley 2014; Meakim et al. 2013), feedback is not synonymous with debriefing as in real terms, it is a unidirectional process of information transfer (Brinko 1993; Telio et al. 2015). The healthcare simulation dictionary defines feedback as "an activity where information is relayed back to the learner" (Lopreiato 2016) based on their performance during an observed activity or its outcome. It is not a debriefing approach by itself but rather a communication strategy than can be used intermittently when time needs to be saved to cover learning objectives that do not require in-depth reflection on the part of the learners (Cheng et al. 2016a). If it is the sole approach used during a debriefing session, then the facilitators is assuming the role of an instructor. Directive feedback is a result-centred, didactic, instructor-driven report given to the learners after a simulation has occurred. It is an active transmission of corrective information to a learner based on the assessment of an action, an event, or a process (Archer 2010; Hatala et al. 2014; Lefroy et al. 2015). The "debriefer"—who is acting more like an

instructor than a facilitator in that case—states the gaps in performance and hopefully gives solutions for future experiences so learners can improve their performance. Therefore the learners are more passive, as there is less interaction, and they are primarily acting in the capacity of receivers of information. This approach is interesting when there is a time issue (very rapid debriefing) and when gaps in performance are dealing with factual technical skills and/or knowledge rather than concepts.

The advantage of directive, constructive, expert feedback is its rapidity for closing, or at least highlighting, performance gaps. It can especially be used when the reasons for the comments are obvious and the discussion is needless (Cheng et al. 2015a; Eppich and Cheng 2015). Another example of such approach is in the case of formative OSCE when a very short period of time only is dedicated to providing feedback to individual learners at the end of a station (Alinier 2003).

Nevertheless directive feedback has several pitfalls: (1) it does not necessarily explore the intention of the action (the mental frame) so it can remain incorrect; (2) there is a risk of sliding down to a judgemental debriefing especially if the instructor has an authoritative attitude; (3) it does not really involve the learner other than as a recipient of information since it is instructor-driven; and (4) it shortens the discussion and often does not allow much debate (Cheng et al. 2015a). It can have a negative emotional impact on the learners if not framed in a considerate manner (Lefroy et al. 2015). Psychological safety of the learners is an aspect that also needs to be carefully considered when providing directive feedback. Most educators are familiar with the sandwich feedback approach, whereby a negative point or criticism is preceded and followed by a positive comment. Although the praise generally helps maintain learner's self-confidence, it probably does not really improve their future performance (Parkes et al. 2013). Providing a few other feedback-related examples, Kurtz et al. (2016), Cantillon and Sargeant (2008), and Pendleton et al. (2003) advocate for slightly different approaches, engaging the learner in the process of generating recommendations closely resembling commonly used debriefing approaches which are more learner-centric.

As such, we can say that directive feedback is an incomplete form of debriefing as it does not elucidate the learners' rationale for their actions or thinking but can be used as part of the debriefing process. Debriefing is intended to achieve the objectives of feedback and helps clarify the learners' mental frames through a facilitated discussion promoting reflective thinking, which is hopefully a more effective corrective process in terms of closing performance and knowledge gaps.

1.8.2 Plus/Delta

Plus/delta debriefing is a process-centred learner-driven debriefing approach, usually led by a facilitator (Fanning and Gaba 2007). The participants are asked "What did work in this scenario?" (the "plus") allowing all of them to answer. When all the answers appear to have been exhausted, the facilitator asks "What could you improve?" or "What could have been performed in a better way?" (the "delta") (Klair 2000).

The advantages are (1) it is a fast and easy way to debrief; (2) it is learner-driven as they provide their own self-assessment; and (3) many solutions can be proposed in a very short period of time, leading to several improvement suggestions, especially if the facilitator asks everybody to write on a sticky note the "plus" and on another one the "delta" and then stick them on a board. Then it reaches a plus/delta debriefing where everybody answers to the questions independently, leading to a potent enrichment of the situation.

Disadvantages are (1) it is easy to get lost in the debriefing process if there is no strict "keep on track" rule such as going through positive and negative points in a chronological manner; (2) it can miss the opportunity to discuss the intention of actions, since it does not ask "why?"; and (3) technically, it is the facilitator who generally closes the performance gaps (Cheng et al. 2015a; Eppich and Cheng 2015); hence it is not promoting learner self-reflection.

This approach can be used to state the elements that could be performed better or to formulate the discussion points that will later be explored in a deeper way by using an advocacy-inquiry process. This second use of plus/delta is also called plus/delta/plus (O'Brien et al. 2017).

The plus/delta method can be extended during the scenario to the observers taking notes about the aspects for which participants need to be praised or the aspects that need to be improved as suggested in Table 1.2. This possibility allows having an active audience of observers and sometimes using the plus/delta filled-up forms to investigate gaps in performance among the observers.

1.8.3 After Action Review

After action review (AAR) is a modified plus/delta debriefing approach that explores the intentions of actions. It has been widely used in the military field for several decades. It is also a process-centred learner-driven feedback ruled by a facilitator (Sawyer and Deering 2013). At first, facts are exposed by two questions: "What was supposed to happen?" and "What actually happened?" This allows the learners to realise the importance of the delta (or variance). Then the facilitator initiates a discussion with two questions to the group: "Why was there a difference?" and "What can we learn from this?" In the simulation environment, the last question could be presented as "formalize learning by reviewing with the group what went well, what did not go well, and what they would do differently if faced with a similar situation in real life" (Sawyer and Deering 2013). This investigation leads to shared opinions and allows an exploration of intentions of actions that are expressed altogether and not individually. Finally the last question seeks for improvements, even if a specific gap in performance has not been completely identified, explored, or addressed.

Advantages are (1) it is a learner-driven debriefing technique; (2) the discussion can get very interactive; (3) it explores the intention of actions in some ways; and (4) it rapidly gives improvement leads.

Disadvantages are (1) gaps in performance are not clearly stated but assumed and (2) it refers to the team's perception of the situation and easily misses deepening into individual's mental frame to understand the intention of a specific action.

1.8.4 Advocacy-Inquiry-Focused Facilitation

Debriefing with good judgement was introduced in 2006 by the Harvard team (Rudolph et al. 2006, 2007). It is one of the most famous communication approaches for a structured debriefing that really positions the debriefer as a cognitive detective. It uses the advocacy-inquiry technique as a conversational technique to discover gaps in the participants' performance related to cognitive and behavioural attributes (Eppich and Cheng 2015).

We will follow a framework of debriefing inspired from Rudolph's Good Judgment Debriefing (Rudolph et al. 2006) completed by some elements of Eppich and Cheng's PEARLS framework as a guide through the debriefing process as it allows to use different types of educational performance review approaches—directive feedback, plus/delta, and focused facilitation—in the Analysis phase (Eppich and Cheng 2015) including the advocacy-inquiry technique. Table 1.5 summarises the four main educational performance review approaches described above in relation to the debriefer(s) and learners' role, on what it is founded, the advantages and drawbacks, and the context and domains when it can be used.

Within some of the different debriefing models and frameworks previously described, some communication strategies can be used as directive feedback, plus/delta, after action review, and advocacy-inquiry.

1.8.5 Other Forms of Feedback

Other than "directive feedback" which has been presented earlier as being feedback provided to specific scenario participants by debriefers in an instructor capacity, we need to introduce the concepts of "auto-feedback", "feedback by peers", and "self-debriefing".

Auto-feedback is about guiding the learners' reflection through questioning, so they generate their own feedback. The instructor is then a facilitator who is not perceived as directly making criticisms or praises but helps learners making sense of what happened or should have happened had they taken different actions during their scenario. It is a safer approach to use than feedback by peers who may lack the ability to provide their feedback in a tactful or respectful manner or might even be prone to inaccuracies (Davis et al. 2006). Feedback by peers should only be used after having established clear mutual respect ground rules and with the instructor always ready to retake control of the sessions in case it becomes antagonistic towards the learners receiving the feedback. Learners need a certain level of clinical experience and understanding to engage meaningfully in this process. Feedback by peers can also be

Table 1.5 Summary of the four main educational performance review approaches

	Directive feedback	**Plus/delta**	**After action review**	**Advocacy-inquiry**
	Educator-centred Educator-guided	Learner-centred Educator-guided or self-guided	Learner-centred Educator-guided or self-guided	Learner-centred Educator-guided
Debriefer's role	Active role as an instructor providing guidance, giving corrective information, solutions, and closing the gaps	Asking questions, closing most of the gaps	Asking questions	Asking questions, curious to understand the reasons (Frame) behind performed actions
Learner's role	Passive, few to no opportunities for interactions	Active participation, giving most of the solutions	Active participation, giving most of the solutions, closing most of the gaps as a team	Very active participation, giving the solutions, closing all the gaps
Basis of feedback	To present gross results based on observations	To determine what is the difference between what was expected and what happened?	To determine why there is a difference between what was expected and what happened? (to the team)	To determine why it happened the way it did? (to the learner)
Advantages	Rapid For knowledge or technical issues	Fast Easy to implement Learner-driven Possibility of many solutions Interactive	Learner-driven Explore team's intentions Interactive	Learner-driven Explore individual's intentions and frames Very interactive
Disadvantages	No exploration regarding intentions or reasons of actions Risk of becoming judgemental Learner excluded No discussion as one way communication process	Difficult to keep on track No exploration about the intentions of actions	Gaps in performance not clearly addressed Lack in deepening learners' frame	May take more time
Context and domains for which it can be used	Time-restricted context Suited to cover knowledge and technical issues	Some time has been allocated for the debriefing, and the instructor(s) remains able to promptly end the debriefing Broad range of aspects can be addressed (cognitive/behavioural/technical)	Some time has been allocated for the debriefing so the instructor(s) can appropriately facilitate the process Broad range of aspects can be addressed (cognitive/behavioural/technical)	Sufficient time allocated for the debriefing as it can take a while to guide participants through the reflective process Covering primarily knowledge/cognitive and behavioural issues

a form of directive feedback. Self-debriefing is yet a totally different approach as no facilitator is required for that process, beyond initial orientation (Boet et al. 2011). It requires maturity and discipline on the part of the learners, so they can effectively and independently engage in the reflective learning process. A visual aid such as the one proposed in the RSF or "Reflective simulation framework" (Jones and Alinier 2015) can be helpful to guide the self-debriefing process to a certain level. The Anaesthetists' Non-technical Skills (ANTS) scale has also been used to guide learners in the process (Boet et al. 2011), or learners had the ability to play back the video of their scenario performance (Isaranuwatchai et al. 2016). In either case, the research so far shows that self-debriefing is an effective approach for non-technical skills worthy of consideration (Boet et al. 2011; Isaranuwatchai et al. 2016).

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How to Run a Debriefing?

2

Abstract

This section of the pocket book covers the actual facilitation aspect of the debriefing based on a model including introduction, reactions, analysis, summary, and closing/conclusion. It presents the investigational techniques that can be used during the debriefing analysis phase such as the non-judgemental debriefing, the good-judgement debriefing, and the advocacy-inquiry approach. These various approaches aim to demonstrate respect for the participants' actions and decisions at the same time as more or less probing into the rationale or mental frame behind those in order to close the identified performance gaps, which can be cognitive, behavioural, or technical. The advocated approach that can be used involves individually "repackaging" the identified deficiencies, generalising or decontextualising those, and asking learners for solutions, which forces them to actually fill those performance gaps and promotes deeper learning. The summary phase helps reviewing the important learning points or "take-home messages". It is a way for the debriefer to ensure that learners actually recall the solutions of all the performance gaps, which have been closed through the debriefing, and hence that it has been effective (at least in terms of immediate recall). The closing or conclusion phase is more general and provides a further opportunity for learners to express concerns or reveal actual needs regarding additional practical skills training or access to recommended reading material to further their knowledge. It is also a key phase during which to thank the participants for their engagement and reminding them about the confidentiality aspect. Finally some useful debriefing sentences and questions relating to each of the debriefing phases are provided as a guide for debriefers.

2.1 The Debriefing Model Used

Table 2.1 presents an overview of the various phases of the three-phase recommended debriefing model (Eppich and Cheng 2015; Rudolph et al. 2006) that inherently incorporates the core elements of the RUST model (Karlsen 2013) (Fig. 1.2)

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Table 2.1 Recommended debriefing model

Introduction	– Thank participants (Always!) And mainly for the first scenario debriefing: – Remind everyone of the aims of the debriefing – Reassure participants regarding their safety and confidentiality – Present the structure of debriefing – If the scenario was stopped at time that did not seem natural, explain why
Reactions (emotions)	Ask "How did you feel?" preferably to the youngest, less experienced, and then to all the other participants
Analysis	Description: "What happened to this patient?" (to the leader) Successes: "What was successful?" Difficulties: "What difficulties were you facing?" Choose the appropriate technique: directive feedback, plus/delta, after action review, or advocacy-inquiry (two to four gaps in performance) Getting participants to identify and close performance gaps Repackaging, generalising, asking for solutions Verification feedback
Summary	Ask "What did we discuss today?" Get learners to summarise all the take-home messages "Do you have any questions?" Provide a toolbox: didactics papers (recommendations) or specific guidelines regarding particular skills
Closing or conclusion	Thank again all participants for their honesty during the debriefing Remind everyone about confidentiality Hoping for a benefit

sandwiched between an introduction and a closing phase of the debriefing. It also contains our personal recommendations with suggested questions guiding the process. This is the debriefing model we will primarily use in this book.

2.2 How to Introduce Debriefing?

A few minutes need to be spent on the first debriefing introduction. This introduction is very important as it concurs to make the learners even more comfortable, while the debriefing is starting. After the simulation scenario has ended, a participant might experience fear of the facilitators' or peers' judgements, of inaccurate reflection on clinical ability (Savoldelli et al. 2005), or they may feel they have not been given enough time to complete the scenario. This might create barriers to an effective debriefing, and it is therefore mandatory to establish a teaching atmosphere that promotes mutual respect and provides a safe environment. The debriefing introductory points presented in Table 2.1 are now being explained in detail.

Thanking: the beginning of the introduction enables everyone to settle for the debriefing with a general thank you to the participants for their active participation in the simulation. It is often a time when the observers applaud their peers as they rejoin the group in the debriefing room, as a thanking manifestation rather than any kind of approval of performance.

Aim: the facilitator should clearly state what the aim of the debriefing is and what it is not: "It is all about performance improvement and not about feeling bad in any manner or targeting anyone in particular".

Safety: the facilitator should restate the rules of the simulation session, since the learners are most of the time very anxious about the way the debriefing will occur. Benevolence and confidentiality are two guarantees about safety that need to be reiterated even if it was mentioned at the start of the session briefing (Fig. 1.1—phase 1). For example, "There will be no offence, no humiliation, no criticism, and no blame. Nothing discussed here will come out of this room. We will discuss the learning experience and learning points to take away from it". Beware that negative facial expressions on behalf of the facilitators may negate any previous verbal sense of reassurance provided to the learners.

Structure: finally, it is important to reassure the participants about the structure of the debriefing itself since they may not be aware of it and anxious it could last for a long time. "There will be 3 different phases. The first one where we will talk about feelings and initial impressions, the second for analysing and understanding what happened from different perspectives. I may ask provocative questions at that time but respectfully and never offensively, and then we will conclude. It should not last more than 30 minutes".

Finally, if the scenario was stopped at a point in time that did not feel like a natural or expected concluding phase, the debriefer should acknowledge this and provide a brief reason, generally linked to the learning objectives having been addressed or that it was the planned ending point of the scenario. If this is not done, participants will start the reaction phase by describing what they would have done next or maybe by complaining that it was not realistic to not provide them with more time to complete the scenario.

In a simulation session with multiple scenarios for which everyone attends the debriefings, the other elements of the introduction presented in Table 2.1 are only mentioned during the first scenario debriefing. For the second debriefing, all learners will have clearly understood the aim and structure of the debriefing discussion and realised that it is (hopefully) not a humiliating or "grilling" session.

2.3 How to Run the Reaction Phase?

The reaction phase (Table 2.1) is important and should not be delayed to prevent the risk of being "attenuated" or occurring outside the context of the facilitated debriefing. Sufficient time (5–7 min) should be allocated for this essential phase for participants to share their initial reactions about the simulated event that could otherwise lead to them having unresolved negative emotions and cause disengagement in the debriefing process (Cheng et al. 2016a). Simulation raises emotions among participants like fear, stress, indifference, frustration, anxiety, anger, etc. These feelings are very important as they can improve learning and memory if they are properly managed (Joëls et al. 2006). The rationale for the reaction/emotional phase is at first that a proper analysis of what happened cannot be correctly performed by the left hemisphere of the brain, whereas the right hemisphere is "busy" with a flow of emotions. Then venting of emotions is mandatory for subsequent analysis of the events. Secondly, as we saw previously, these feelings are expressions of some unsatisfying facts that occurred during the scenario. Emotions very often refer to gaps in CRM principles. Furthermore, the participants who do not share their emotions may not be as engaged in the debriefing

(Cheng et al. 2015b). Therefore, collecting emotional reactions is of great value for the debriefer(s) in order to make sure they relevantly learn about the different interrelations between the members of the team and their stand point and notice gaps in communication, teamwork, situational awareness, etc. (Weinstock 2013). The emotions expressed are a path for understanding the gaps among the CRM principles or human factors issues that should be debriefed. As such, this succinct reactional review helps set the scene prior to a more in-depth analysis which enables the understanding of what happened (Karlsen 2013). Despite these crucial findings, some authors prefer to step directly into a discussion about what happened and skip the reaction phase arguing it is a "cultural step" (Jaye et al. 2015). In our experience, we found that venting of emotions was very useful prior to going into the analysis phase. What participants express during that phase can be noted by the debriefer(s) for later discussion and has the advantage of freeing up the participants' mind from what they wanted to say which enables them to now concentrate on the other points being discussed.

If participants adopt a defensive stance triggered by something that occurred during the scenario, it needs to be briefly addressed to reach an agreement (e.g. accepting limitation of the simulation realism, explaining why the scenario was stopped, resolving a misunderstanding but carrying on the debriefing according to what happened) so the reaction phase can proceed normally.

How to engage in this phase? Simple questions like "How did you feel?" and "How was it?" are thrown to everybody but rapidly redirected to the most junior participant. This precaution is important to avoid two pitfalls in a group's communication: (1) the Milgram hierarchical effect (Russell 2011) and (2) the Janis groupthink effect (Janis 1971). Both of them would result in a repetition by the most junior or youngest participants of what has been expressed just before by the other team members as a form of submission or feeling of inferiority, in the sense that they may not feel it would be appropriate for them to bring up other points for discussion. If the junior participant feels intimidated by the question, it is important to redirect it to the participant who seems the most willing/engaged from their non-verbal signs. Then the facilitator asks the same question to everybody, including the confederates if present in the scenario, making sure all answers are collected to be able to use them afterwards during the analysis phase. It is important to ask "why" during the analysis phase, after an emotion has been revealed. This may require the debriefer to take some succinct notes regarding the points raised by the participants, to make sure they can be prioritised and discussed later on. This orientation can help the debriefer to link the emotions to teamwork dysfunction or other underlying human factor issues.

2.4 How to Introduce the Descriptive Part of the Analysis Phase?

The duration of the whole analysis phase is usually 10–20 min long (Weinstock 2013), which roughly corresponds to half or two thirds of the debriefing time. Prior to getting into the core of the analysis phase per se, it is mandatory to check among the participants the understanding of the simulation situation to avoid any further confusion in the process of the debriefing. It relies on the awareness of the correct case diagnosis.

Some authors have individualised this step as a specific step called "description phase" (Cheng et al. 2016a). The debriefer should turn to the leader of the team and ask in an inquisitive but friendly manner: "What was this scenario about?" or "What happened to this patient?". The rationale for this transition using an open-ended question is to check if the situation has been properly understood. If there is a discrepancy between what was the assumed and the actual diagnosis in the case, then all the structured analysis would be built on doubtful arguments and assumptions! It forms part of the "understanding" component of the RUST guide to debriefing (Karlsen 2013). All the elements must be in accordance with the actual case rather than misperceptions before going deeper into the analysis with the participants. This situational awareness inquiry about what was truly at stake needs to happen at the beginning of the analysis phase, starting with the team leader before hearing about the perspective from the other team members. A simple matrix of the team members versus the team leader's diagnosis of the situation is presented in Table 2.2 with probable causes for agreement or divergence in opinion.

If the leader's answer is correct, the debriefer can then ask the team members what they think about what the leader just said. If they agree, then the debriefer has an interesting opportunity to give a very positive feedback. For example, "Exactly, this scenario was designed to force you to take a decision regarding the best course of action…". Sometimes members might hesitate or state another diagnosis. This is a very relevant issue underlining the leader's potential non-verbalisation behaviour which would help maintain situational awareness of the situation among the whole team and that should be debriefed afterwards. The debriefer can only reply, "We will talk about why this might have occurred later", and give positive feedback to the leader.

If the leader's answer is not correct, the debriefer should ask the other members what they think of it. If the members' opinion is correct, then a positive feedback should be given to them, and the actual theme of the scenario should be announced, but the discordance should be explored later in the debriefing. If the leader and the rest of the team state an incorrect answer, the debriefer should announce the correct diagnosis of the scenario and then pause for a few seconds. This usually generates a silent moment during which everybody is mentally revisiting the scenario and one's actions with the correct diagnosis. After further general discussion about the scenario (maybe 10 min) exploring the team members and team leader's level of situational awareness, the debriefer may ask the group: "Does it make more sense to you now?" At this point, there should be acceptance nodding from the leader and the other participants. This acknowledgement means that the detailed analysis of the events and interventions can start properly. The actual designed scenario's diagnosis is now in accordance with what the group of learners are understanding thanks this short exploratory phase of the actual scenario diagnosis and why it has been missed.

2.5 How to Facilitate the Rest of the Analysis Phase?

Considering the 'debriefer—learner' dyad— some authors have described the analysis phase as a special inquiry facilitated by the debriefer(s) using Socratic questioning, in the so-called Debriefing for Meaningful Learning (DML) mostly used in

Table 2.2 Linking the team members' situational awareness with that of the team leader and how the debriefer should manage the corresponding situation

		Leader's awareness of the situation	
		Correct	Not correct
Team members' awareness of the situation	Debriefer recommendation(s): Correct	Adequate communication within the team and/or prior experience/knowledge of such situation by all team members helped them come to the correct diagnosis. Give a really positive feedback to the leader and every member of the team	Lack of communication between team members and leader: 1. Team members not asked to report anything "strange" that could have helped the leader identify the gap in situational awareness 2. Passive team members 3. Leader stuck in a "tunnel vision effect" or "fixation error" 4. Mixing of the three Give a reasonably positive feedback to the team members and say: "We will talk about it later on" (= CRM gap in performance)
	Not correct	Lack of communication between leader and team members: 1. Non-verbalisation from the leader 2. Authoritative leader 3. Passive team members 4. Mixing of the three Give a reasonably positive feedback to the leader and say: "We will talk about it later on" (= CRM gap in performance)	Lack of situational awareness from everybody in the team: 1. Too complex scenario 2. Lack of communication between team members and leader 3. Both State the correct diagnosis and say: "We will talk about it later on" Keep in mind there might be a clue (communication gap within the team) that could have resolved this lack of situational awareness and overcome this difficulty that is very often resulting in a profound feeling of frustration

nursing education (Dreifuerst 2015). Socratic questioning is an approach to teaching and learning in which the teacher does not give information or answer the students' questions directly but instead turns the task of uncovering the answers to the students by asking a series of questions so that students come either to the answer by themselves or develop a deeper awareness of the limitations of their knowledge (Dreifuerst 2015). These include questions about (a) the underlying belief or conclusion, (b) opposing thoughts or objections, (c) the origin or source of the information, (d) the implications or consequences, and (e) the reasons, evidence, or assumptions underlying the thought process (Paul and Elder 2007). DML first steps of analysis start with these questions: (1) "What is the first thing that comes to mind about the clinical experience you just had?", (2) "What went right and why?", and

(3) "What would you do differently and why?" These last questions are the two questions of the plus/delta debriefing (see Sect. 1.8.2).

We think it is important to start the analysis phase with a process that resembles the plus/delta debriefing, as it is a learner or team self-assessment strategy and represents a powerful tool for a learner-centred debriefing (Cheng et al. 2016b). The debriefer asks the participants, "What was successful for you in this simulation?", referring to the perceived achievements of the team. It engages learners in active reflection and self-assessment and gives them greater responsibility for learning (Cheng et al. 2016b). It is better to ask "What was successful?" rather than "What do you think was successful?" that could imply nothing was or "What was good?" which raises a moral issue between 'good' and 'bad' or even "What were the positive elements?" which will rightfully make them think that the negative part will come next. The wording of the latter examples may create among participants a feeling that obstructs all learning efforts.

If the answer is correct, the debriefer should not miss any opportunity to give a positive feedback and ask the leader and all the members of the team—hopefully present—to objectively state the teamwork's achievements (more than one). If the debriefer believes that a particular successful achievement really did not stand out, they can ask "What else? Anything else?" until the group members figure out their achievements.

Even if the first answer is not completely accurate, the moment to explain has not come yet, and it is wiser to let go and reply: "We will discuss this later on". For example, when several learners talk about situational awareness in a scenario, the debriefer can say: "I'm hearing several of you sharing your thoughts about the importance of situational awareness. I was thinking the same thing. I was wondering if we could discuss this further." By explicitly sharing this thought process, the debriefer confirms their alignment with the learners' agenda and, in turn, helps build trust with and among the learners, which supports a learner-centred environment (Cheng et al. 2016b).

Then the question should focus on their difficulties, "What difficulties were you facing?", referring to the perceived difficulties. It is important to write down or make a mental note of the elements raised because they will represent topics upon which the investigation technique will be focused. Some of these difficulties may have been already seen by the observers/facilitators during the scenario, but sometimes, at this precise step, there might be an emerging difficulty that was not noticed. This new information should be taken into account, and debriefers should promptly decide if it represents an extra point to debrief on.

2.6 Which Investigation Technique to Apply During the Analysis Phase

The investigation technique adopted during the debriefing is particularly important in relation to the rapport developed with learners, their trust in the facilitator(s), and their level of self-confidence. Two pitfalls that should ideally be avoided are the judgemental and the non-judgemental debriefing approaches. The various debriefing techniques for the investigational phase are summarised in Table 2.3 and discussed in more details below.

Table 2.3 Summary of the two non-recommended techniques compared to advocacy-inquiry technique used in the investigational phase of a good-judgement debriefing

	Judgemental debriefing	Non-judgemental debriefing	Advocacy-inquiry with good-judgement debriefing
Debriefer's role	*Goal*: changing the participants' behaviour, no matter what the environment may be *Assumption*: openly divulge what went wrong. Participants should have performed perfectly without committing any error	*Goal*: wanting to avoid shaming participants. Hoping the participants' behaviour will change in a non-offensive environment *Assumption*: tactfully expose what went wrong but minimise the importance of any potential mistake	*Goal*: mutual learning without shame Eager to investigate the intentions behind the participants' actions in a favourable environment for learning *Assumption*: participants are smart and want to do the right thing; mistakes are puzzles, not crimes
Debriefer's view of the participants	They are making mistakes and need to be told frankly about it	Their performance was not perfect, but they cannot really be blamed, so we should present both positive and negative points	Their actions during the performance were led by specific knowledge and assumptions that we need to explore, so it can be properly corrected to avoid future reoccurrence
Approach	Blaming, shame, factual statement of "truth"	Kind, gentle, lead learner to my answer	Mutual respect, inquisitive, curiosity, advocacy, and inquiry
Typical message of debriefing	Here is what you failed at completely. You did not do this… You should have done that…	In your opinion, what could have been improved?	I observed… I am concerned… I am just curious to know why…

2.6.1 The Judgemental Debriefing Technique Should Not Be Used

The judgemental debriefing technique has been used for years and still is in some clinical fields as some mentors think that trainees need to be shaken up and face the consequences of their actions irrespective of whether it is a patient safety issue during a learning activity or an critical event with a real patient. It should not be used in simulation-based education as it contradicts any positive learning process and violates basic psychological safety principles. The reason being is that it is felt as an offence by the participants, and they will want to respond with defence mechanisms that obstruct any learning process and may also impact on future simulation-based learning opportunities. Furthermore, this type of feedback may be detrimental as stated by Falchikov (2007): "In some cases the interaction between the learner and the assessment event is so negative that it has an emotional impact that lasts many years and affects career choices and inhibits new learning".

In the judgemental debriefing, the instructor has a very active role, speaks with authority, and always uses the accusative highlighter "you" (second person), for example, "You failed to notice…". The participants, on the opposite, have a very

passive role, being the recipient of this type of directive feedback, often without any reaction being expected from them (see Sect. 1.8.1). They may rightfully perceive this debriefing approach to be very offensive and depreciative which might make them feel very bad. There is not much learning benefit from such a debriefing approach other than to make them dislike the overall experience and feeling ashamed potentially in front of their peers (Table 2.3).

For example, after a simulation of CPR on a 3-year-old child, the instructor might say: "You did not perform chest compressions at a rate of 100–120 per minute!", "You made the cardiac massage at a rate of 60–65 minute at most, which is insufficient!", and "You don't know the paediatric resuscitation guidelines!" These are direct accusative statements that do not invite or even allow for the learner to explain why they may have had a lapse in their resuscitation efforts.

2.6.2 The Non-judgemental Debriefing Technique Brings Little Benefit

The non-judgemental debriefing—also named the sandwich strategy—is probably the most commonly used debriefing technique. It has been used all over the world for decades and remains widely used in simulation-based education, especially with "alphabet" resuscitation and trauma packaged courses. It was implemented to overcome the pitfalls of the judgemental debriefing technique which is offensive to the learners, offers no praises, and has consequences that impair the learning process (see Sect. 2.6.1). Nevertheless, even if this technique is more respectful of the learners, compared to the judgemental debriefing, it is not relevant enough and may miss major debriefing points as it does not precisely address the gap(s) in performance and the profound reasons behind them (Table 2.3).

In the non-judgemental debriefing, the facilitators have an active role but are less authoritative. They use impersonal (neutral) forms as "it" (third person), "It was not so bad", "It's good", etc. The learners have a passive role as there is not much interaction. The good point of this debriefing technique is that there is no or little perception of being offensive and the learners join in more easily. The facilitators' approach to identifying the gap(s) in performance is extremely cautious as they use a "guess WAIT" (What Am I Thinking?) strategy (Weinstock 2013). There is more to guess about what should have been the appropriate action and its rationale than a real understanding of the reasons for the gap(s) in performance on the part of the participants. A trained learner should also expect the bitter taste of the middle part of the sandwich after some practice, without better understanding of what should have been performed. The learning value of such a debriefing is moderate, probably more important for experienced learners, but insufficient for beginners as it does not address the causes of the gap(s) in performance and does not really promote reflection to help learners correct their behaviour or decision-making processes.

In the previous example, after a simulation of CPR on a 3-year-old child, the sandwich strategy may be applied as follows: "It was great! This child recovered. Well, chest compressions could have been faster, but overall it went well!"

2.6.3 The Good-Judgement Debriefing Technique

The good-judgement debriefing (Rudolph et al. 2006, 2008) is a relatively recent debriefing technique commonly taught during workshops and seminars addressing the healthcare simulation community to try to fill the gap of the judgmental and non-judgemental debriefing techniques, i.e. lack of relevance towards the performance gaps that have not been closed. The practical basis for good-judgement debriefing is that if you tell someone that they performed an action inappropriately and tell them to do it differently, it will not work! Or at least it will work sometimes but not constantly (Rudolph et al. 2017). There is a need for understanding the intention of the actions prior to making them change. Thus, the theoretical ground rule for the good-judgement debriefing is about understanding the reasons for the scenario participants' actions by exploring the unseen mental frames behind the observed actions and their outcomes (Rudolph et al. 2007). The hypothesis is that there may have been erroneous mental frames leading to the incorrect action(s) and that not knowing them could persistently lead to a recurrence of incorrect decision-making and associated actions even if the results of incorrect actions have been debriefed. This approach really positions the debriefer as a cognitive detective (Rudolph et al. 2017) and promotes reflection on the part of all the participants and provides some form of psychological safety as it is genuinely inquisitive as opposed to being directly critical. Once the debriefer has in mind what they observed during the scenario, i.e. one set of actions that seem inappropriately performed, they invite the participants to discuss this point by a preview statement like: "I'd like to discuss this topic (related to objectives) with you" (Rudolph et al. 2017). In summary, openly criticising the participants about their performance (as in judgmental debriefing) might be offensive to them and impair their learning process. Also the good-judgment debriefing technique can be seen as a non-violent communication technique and encourages participants to remain positively engaged.

The content of the analytic phase of the good-judgement debriefing technique includes four steps: (a) identification of a performance gap, (b) providing feedback on the performance gap, (c) investigating the basis for the performance gap, and (d) helping to close the performance gap through further discussion and teaching (Rudolph et al. 2008). The prerequisite for this exploration process (inquiry) is that the debriefer(s) makes their observations and first reveals their mental frame. This part is named "advocacy", and that is why this debriefing technique is also called the "advocacy-inquiry" (A/I) technique. The good-judgement debriefing technique forces the debriefer(s) to see the intention(s) behind every action and not to judge too quickly on the sole results of the actions performed by the scenario participants.

In the good-judgement debriefing, the instructor really becomes a facilitator, who is always questioning everything and everyone for the right reason, which is "understanding". The atmosphere of the debriefing is completely different from that of the judgemental debriefing, as it is assumed that the participants are sincere, innovative, dedicated, respectful, and authentically care about doing their best (SIDRA) (Sigalet et al. 2015). The debriefer uses "I" (first person) without any pride nor fear, as it is only to reveal their own mental frame to the learners.

As a result, there is transparency, honesty, and curiosity. The classic approach to good-judgement debriefing is made of a three-sentence-type process: (1) "I observed that the assessment of the patient was delayed…" (the debriefer's factual—neutral—observations), (2) "I am concerned about this because to me it means that…" (referring to the debriefer's own mental frame of understanding the situation = advocacy), and (3) "I just want to know why the first action was to look at the patient monitor settings…?" or "I wonder what was in your mind at that time?" (inquiry). None of these sentences contain any "you". Without being addressed in an offensive manner by the debriefer who is always inquisitively asking "why…?" in a soft neutral tone, the participants experience a very interactive debriefing that forces them to respond and reflect on what they did and what happened. This latter point has a very important psychological effect supported by the avoidance of using "you". Instead the debriefer is always referring to their own mental frame and saying "I". This type of debriefing has a very important learning value since it does not offend the participants in any way and is extremely relevant in its exploratory process regarding the reasons for the gap in performance and its causality (Table 2.3). Special attention should be paid to the importance of the second sentence ("I am concerned…"). If inadvertently the debriefer forgets this second sentence and goes from "I noticed such and such…" directly to "I just want to know why…", it would lead to a "read my mind" question where the learner may be disoriented while trying to understand the reason for this question (Cheng et al. 2016a).

Sometimes observations refer to the absence of specific expected actions. For example, in a patient in shock, it is mandatory to feel the central and peripheral pulses. If this step is skipped by the participants, it is more appropriate for the debriefer to formulate an absence of observation in this manner: "I did not see checking the pulses…", "I wonder if the shock is severe it may impair pulses…", and "I am curious to know why the pulses were not checked or if I missed it?" On the opposite, the more "natural" way would be: "I observed you did not check the pulses…" But the latter sentence would be felt as an offence as it links a "you" with a negative form which is a missed action by a specific participant.

Taking the same example, after a simulation of CPR on a 3-year-old child: "I observed that during the resuscitation of this child, the chest compressions were at the rate of 60–65/min. I am concerned about this low rate as it could lead to insufficient blood flow, especially to the brain and impair recovery, or even prevent from returning to a normal cardiac rhythm. I am curious to know why chest compressions were performed at that rate?"

As the example above states, the question remains wide open. This is the exploration of the learner's mental frame. The debriefer should ask what was the hidden intention behind this low rate of chest compressions. In this example, the learner answered: "I felt that my colleague who was trying to put the intraosseous access was in trouble, so I slowed down the rate for him to manage the IO!"

Here the learner's mental frame was revealed: intraosseous (IO) access and the urge to get the epinephrine bolus were given priority over the chest compressions, which is erroneous. Thus, good-judgement debriefing was the only debriefing technique that could allow revealing an erroneous mental frame on the part of the

learner. This would have otherwise been kept concealed and maybe responsible for recurrent incorrect actions with adverse effects on real patients.

Furthermore, in this real simulation example, the supervisor did not notice another gap in performance—a technical one—that occurred during the scenario. Why were the chest compressions interfering with the IO access insertion process? It is because the IO access was attempted in the proximal tibia site without putting a roll under the knee to desolidarise the leg from the trunk of this paediatric patient. This "clinical skills" technical gap on the part of the other learner also has to be addressed during the debriefing as it can lead to detrimental consequences similar to those seen in this example. As part of the debriefing, team members should be encouraged to provide feedback to one another while treating a patient to ensure optimum care at all times. This forms part of the 'mutual support' element of CRM (see Table 1.3) which can sometimes be seen as a core aspect of the adequate management of a situation as opposed to being a secondary element (Carbo et al. 2011; Gangaram et al. 2017). Rather than being two separate "errors" committed by two distinct practitioners, it needs to be considered as two "misjudgements" committed by the team, and all can learn from uncovering what happened and how the situation should have been ideally handled.

As you can imagine, if the debriefing had been done according to the judgemental technique, no improvement would have been made in the future because the real gaps in performance (erroneous mental frame and technical error) would have been kept unexplored. Furthermore, it may have been perceived as an offensive comment to the learner, whereas this learner was in fact trying to solve a problem faced by his fellow clinician during the resuscitation process. It was not due to a lack of knowledge regarding the chest compression rate for children but an attempt of providing direct support by altering their own CPR practice inherently caused by another clinical skills error which also needed to be discussed and could otherwise have easily been missed.

The non-judgemental technique would not have addressed the gaps in performance either as it would have just pointed out the low chest compression rate without exploring its causes. Nevertheless, the soft approach of non-judgemental debriefing may have safeguarded the learner from any feeling of causing harm to the patient and emphasised treatment and intervention priority in relation to the patient's benefit.

Paradoxically, the good-judgement debriefing technique is the only debriefing technique that was able to discover gaps in performance. It can be felt as paradoxical as it is the only technique where the debriefers have to state exactly the reasons for their concern. On the first impression, this part could appear to be harsh or rude to the learner, but it will not be the case as long as it is connected to the debriefers' own point of view—their mental frame. At this point, it is important to say that in this type of debriefing, it is much better to use the pathophysiological explanations of the recommendations as they become the debriefers' own mental frame, instead of stating the international recommendations as the rule, even if they are linked or identical and evidence based. The difference lies in the perception from the learner. The first approach protects the learners from the feeling of offence, as the explanation refers to the debriefers' own mental frame and can be presented as a teaching

point to reflect on rather than a given fact they may perceive as being criticised for having forgotten. In other words, the second approach can be felt as a non-observance of the international recommendations that apply to everybody and makes it sound like a worst mistake or shortcoming.

As we can see, the good-judgement debriefing technique uses two potent drives: (1) referring to the debriefers' mental frame as a safety from making a potentially offensive comment (advocacy) and (2) questioning "why", asking what the reasons for the actions were (inquiry). Combining these two during the debriefing phase allows the best learning to take place and provides a shared satisfaction regarding the discussion that takes place.

How many times should the advocacy-inquiry technique be used with the participants during the analysis phase of debriefing?

It is reasonable to use it a few times (two to four times), but it depends on the time available, nature of the performance, learner group, learning objectives, etc., each time addressing directly the participant who performed the specific action that needs to be unravelled. It can be to the leader or any other team member.

The observations reported by the debriefers should be carefully phrased, objective, factual, and of interest; otherwise, the answer could be: "So what?"

At this point, it is interesting to notice that the link between mental frame/process/action is not always a bijection, i.e. a correct action can be displayed with an erroneous mental frame. This emphasises the importance for the debriefer of maintaining an honest, curious, or inquisitive approach during debriefing, no matter what has been observed. For example, anybody knows that septic shock, once diagnosed, implies application of high flow oxygen to the patient, using a high concentration oxygen mask, as the first step of therapy. Let's imagine that during a classical septic shock scenario, a nurse assistant puts the high concentration oxygen mask on the patient after opening rapidly two drawers of the emergency cart. This quick opening of the drawers seemed strange to the debriefer. It aroused their curiosity, so during the debriefing phase, the debriefer said to the nurse assistant: "I noticed that before applying the high concentration oxygen mask on this patient, you rapidly opened and closed the drawers, why?" The quick answer from the nurse assistant was, "I did not find the nasal prongs!"—which revealed a wrong mental frame, i.e. thinking that septic shock first needs low flow oxygen through nasal prongs. So, the appropriate management of the patient during the scenario with the high concentration mask was only because the participant's preferred oxygen delivery adjunct was not readily at hand. This gap in performance was not actually observed and could not have been addressed without careful observation of the whole scenario from the beginning and using a questioning approach of what had been noticed by the debriefer. It underlines the need to keep a very focused mind and scrutinise every details while observing the scenario, and to be curious enough during the debriefing to examine everything that could appear to be strangely performed. An insignificant move may express a gap in performance due to an erroneous mental frame or assumption that should require proper debriefing and closure.

Is there a difference of inquiry technique according to the learners' status? The classical form of inquiry by asking "why?"—being willing to investigate the mental frame of the learners—is usually done when the learners are not novice. Asking

"why?" does not make any sense towards novice learners since they might not own a constructed mental frame yet. Then the question could be close to "What were you attempting to perform?" in order to balance the "what" and the "why" according to the learners' abilities and knowledge in a specific domain. They may be relatively able or skilled in a particular domain and be a beginner in another.

2.6.4 How to Modulate the Use of Advocacy-Inquiry During Debriefing?

Advocacy-inquiry is not a debriefing strategy generally used on its own but rather needs to be utilised in conjunction with other techniques that also promote reflection and understanding of scenario participants' actions. "Promoting Excellence and Reflective Learning in Simulation" (PEARLS) has recently been presented as an integrative approach of debriefing (Cheng et al. 2016a; Eppich and Cheng 2015). In this PEARLS approach, the authors differentiate three strategies of providing a feedback during debriefing according to the nature of the performance gaps: directive feedback, facilitator-driven plus/delta debriefing, and advocacy-inquiry (Eppich and Cheng 2015). Their differential use depends on various parameters such as time allocated for the debriefing, evidence of rationale to close the performance gap, and type of performance gap, i.e. knowledge (cognitive), skills (technical), or attitudes (communication, CRM). In their view, directive feedback is useful when time is short, the rationale is evident, and it is a gap related to technical or cognitive issues. On the other hand, the advocacy-inquiry technique is preferable when there is more time, the rational is not evident, and it is about addressing a gap dealing with cognitive or behavioural issues. The plus/delta strategy can be considered as a mixture of both (Eppich and Cheng 2015). Despite the fact that time could be limited and may modify the strategy that can be used effectively, we think that even facing technical gaps with rational-based evidence, using a structured debriefing approach with the advocacy-inquiry investigation technique is worthwhile as demonstrated through our previous example regarding CPR and IO access. Advocacy-inquiry may be used with a scenario participant to genuinely uncover what really happened and why so everyone, including the debriefer(s), can understand their mental frame. It may also be used for teaching purposes, whereby the debriefer had a clear idea of the scenario participant's mental frame but wants all learners to clearly understand their peer's thinking process and/or actions. Several of the points to reconsider are presented in the last column of Table 1.5.

An educational strategy and conversational technique used since the late 1980s in family therapy, potentially complementing the advocacy-inquiry approach, is called "circular questioning". It can be used in simulation debriefing as a form of focused facilitation to explore teamwork patterns (Kolbe et al. 2016). The major guiding principle of circular questioning is a communication process of creating distinctions and connections (Brown 1997). Creating differences while questioning is the fundamental principle underlying all question types. These differences include distinctions over time ("When did this problem begin?", "When was it the most difficult?"), between people ("Who among you all think that this was the most appropriate therapy?"), between parts of a person ("Do you think that at that time you were ruled more by your feelings or by your thoughts?"), and between situations

("In what situation is the problem most noticeable?") (Brown 1997). Then drawing connections include questioning about behaviours ("What happened after you asked him/her to do this…? What happened then? How did it all end?"), feelings ("What feelings emerge in you when he/she calls you incompetent?"), beliefs ("When someone is reluctant to help you out during a difficult task, what do you think?"), meanings ("How do you understand when he/she says that…"), and relationships ("When this… happens, how do you think that affects team dynamics?") (Brown 1997). This mixture of questioning on differences and creating connections obtained by circular questioning can be helpful during a debriefing to create a very interactive discussion with several participants and to direct the dialogue towards a more complete understanding of the scenario they experienced from a teamwork perspective (Kolbe et al. 2016). It may help them develop new perspectives regarding interrelations among the multiple elements or factors mentioned earlier (e.g. people, situations, behaviours, feelings, etc.) and hence is greatly complementary to the advocacy-inquiry process. It directly links up to the interrelations of the SHELL model (Software-Hardware-Environment-Liveware-Liveware) of Human Factors science (Carayon 2006) where in the clinical context: protocols, therapies, and treatment guidelines are the software; the medical equipment is the hardware; the clinical setting, the noise, and luminosity are part of the environment; and the team leader and members are the liveware.

Nevertheless some factors may impact the debriefing design and structure, such as the intended learning objectives of the scenario, the complexity of the case, the level of clinical experience of the participants, their prior experience with the simulation environment, the occurrence of expected events during the scenario (caused by the participants or other events of the simulation), the time available for the session, the role and purpose of the simulation in the overall curriculum, and the individual personalities and relationship between participants (Fanning and Gaba 2007). All of the above factors are to be considered in the singular or repetitive use of the advocacy-inquiry approach during the debriefing process of simulation experience.

2.7 How to Close Performance Gaps?

Once a deficiency or performance gap has been identified, it has to be "closed", preferably through a proper inquisitive analysis; otherwise, it will persist and repeatedly become an issue potentially compromising patient care or team dynamics. Closing the performance gap relies on three steps as illustrated in Fig. 2.1.

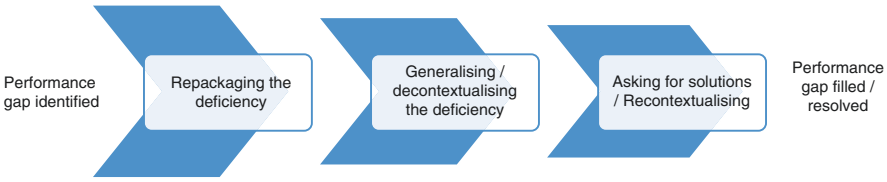

Fig. 2.1 Three-step approach to closing a performance gap during debriefing. Adapted from Weinstock (2013)

The first one is “repackaging”. Sometimes it is obvious, yet most of the time, this step is necessary. It is important to make sure the debriefer has a clear understanding of the causal relation between the perceived participants’ frame and their actions, whether it leads to failure or success (Kuiper et al. 2008). That means that the debriefer has to rephrase what the scenario participant said or did and check if it is an accurate interpretation. If we use the previous example (3-year-old child with CPR): “What you are saying is that you were waiting for your colleague to establish IO access before performing chest compressions at a rate of 100 per minute. Is this an accurate interpretation?” Presenting the interpretation as a straightforward and direct statement generally triggers a nod of approval from the learner.

The second step is “generalising”. The debriefer can take advantage of this precise moment by inviting the rest of the group to take part in the debate. Sometimes generalising is not easy prior to the closure of performance gaps, and it can be performed after. It is always interesting to widen the scope of the discussion with all the learners in order to associate situations where similar performance gaps could occur.

Getting back to the previous example (3-year-old with CPR), the generalisation could be as follows: “Well, clearly the resuscitation effort is a situation where several individuals perform different tasks at the same time. When this happens, one can perceive that since some tasks seem equally urgent, it is tough to choose which one to perform first over others. Has anyone ever experienced such a prioritisation conflict during another intervention or situation?” This part (decontextualising the situation) aims to gather impressions from all learners that were not especially linked with the scenario that just occurred and to report other examples that could similarly be explored through debriefing to benefit everyone. This is an open question that ideally engages learners who were observers of the scenario being debriefed.

The third step gets back to the current scenario by asking for solutions from the learners. This is a form of “recontextualisation” of the identified deficiency that is being addressed. In this case, auto-feedback by the participant(s) with a gap in performance is always more potent than feedback given by their peers or the debriefers themselves. This is why the debriefer could first try to ask the participant with a performance gap to verbally self-correct their action as it would be less likely to be negatively perceived. “So, getting back to paediatric CPR, we have three tasks running at the same time: bagging with oxygen, chest compressions, and putting an IO access needle for the epinephrine injection. Is the administration of epinephrine via IO access a priority over the chest compressions during CPR? That is the question!” If the participant cannot answer this question, the way to proceed is by asking the other members of the team. It may allow for the correct answer to be verbalised, pointing out that the “C” (circulation) part of the ABCs of paediatric CPR takes priority over the epinephrine injection, as it is crucial to maintain this oxygenated blood flow to vital organs via the best possible rate of chest compressions, which is 100–120 per minute. It helps to avoid the consequences of insufficient or interrupted blood circulation and promotes

adequate distribution of the epinephrine in the systemic circulation when injected. This argument is referring to the logic of management of cardiac arrest in children as is described in the international paediatric resuscitation guidelines (Biarent et al. 2010). If this explanation does not come out from a participant or other learners who was observing the scenario, the only feedback left is the debriefer's directive feedback which is faster yet not as effective as the participant's own verbalisation of the approach which should have been adopted since it will in most instances hardly be remembered after a while as the deep learning through reflection will not have occurred. At that point, an option for the debriefer would be to approach this issue, step by step, and not to directly explain what the correct management of CPR is. For example: "Considering an unconscious child showing no signs of life, the airway is cleared, and bagging is started, if the child is not breathing and still shows no sign of life, what has to be done next?" If none of the learners comes up with a solution, the debriefer has to close the gap. It is important to make sure an investigated performance gap ends up being resolved with a correct understanding of management solutions by all the learners. This very important part of the debriefing takes time. One should progress carefully along the tracks on the chosen debriefing framework and spend sufficient time for the closure of performance gaps as it represents the "transfer of knowledge" part (from the debriefer to the learner) of the simulation-based education process.

This progressive approach would help the learner understand that chest compressions are implemented early in order to establish a sufficient cardiac output and that the epinephrine comes in addition to it but cannot replace it. Such guided reflective phase will get learners to realise that medical management strategies are often about piling up complementary procedures which may somehow be conflicting in some circumstances and give rise to a situation where good clinical judgement needs to be exercised in order not to compromise the patient outcome. It may be interesting to expand the debate by asking: "Can you think of any strategy to overcome this problem in the future?" Referring to the pathophysiology of a management can make the relative priority of actions clearer and help to prioritise such actions in difficult situations. It is noteworthy to point out that in this example, it is never said in the recommendations that chest compressions should be slowed down if the IO access insertion process is difficult to achieve, but it is not stated either that the rate of chest compressions should be kept at 100–120 per minute in such a case.

At this point, it is important to focus on individual and team goals because it represents a valuable approach for participants to overcome their gaps, deficiencies, or mistakes before the next simulation session or their real clinical duty. Highlighting these goals gives them direction and motivation and helps them sustain the expected behaviour (Gardner et al. 2016). Emphasis should be put on application to real clinical practice as it represents the "transfer of knowledge" from simulation practice to practice real, which is the most authentic proof of the efficacy of a simulation-based education program.

2.8 Verification of Closure of Performance Gaps

Once the closure of performance gaps is over using the approach illustrated in Fig. 2.1, the debriefing is almost finished, but it is very important to make sure that beneficial learning occurred with the participants by a verification feedback. It helps reviewing the important points as recommended in the RUST guide to debriefing (Karlsen 2013) (see Fig. 1.2). As we have previously seen, there are three ways of providing feedback: auto-feedback, feedback by peers, and directive feedback by the debriefer who becomes an instructor (see Sect. 1.8.1 and 1.8.5). The auto-feedback is a learner-centred approach which is very effective for closing performance gaps and test understanding as it involves asking a very simple question to the learners:

> "If you had to do it again, what would you do differently?"
> or
> "If you had to perform the same scenario right now, in what way would your approach differ?"
> or
> "If you happen to deal with the same case at the hospital tonight, what learning point will you particularly consider?"

The debriefer should keep in mind the list of the different gaps of performance that were brought up and debriefed. All of them should come out again in the answers to those questions. If it is not the case, the debriefer should ask additional questions such as "Anything else?". The best way to go is—and we cannot stress this enough—to keep the debriefer in a facilitator role with a questioning approach. It may start with "What did you learn today?" and keep asking "What else?" until all the points reviewed have been mentioned.

A complete reminder of all the points debriefed by the team members is the guarantee of the learning value of a debriefing. It corresponds to the "take-home message" component of the RUST guide to debriefing (Karlsen 2013) (see Fig. 1.2). If the summary is incomplete, the debriefer should try to provide hints to the learners, so they can find the expected answers instead of directly giving away the solutions. A complete and persistent absence of recalling any improvement points despite the debriefer's efforts is synonymous of the debriefing's inefficiency. So this time dedicated to control is very important because it confirms the essential assessment of the debriefing's relevance and understanding of the learning points by the learners.

2.9 How to Run the Summary and Conclusion of a Debriefing?

The summary and conclusion of the debriefing should last a few minutes (Weinstock 2013). It must be short and aim to maintain favourable learning conditions. The facilitator needs to remain enthusiast and supportive to project

a positive image to the learners. The debriefer can sum up what has been talked about during the debriefing: any medical procedure or algorithm and a specific CRM issue—but without going into details. It is even better if the debriefer asks participants "What did you learn today?" After recall from the participants, the debriefer can ask if there are any questions. Generally, at that point, some learners speak up about how they tend to lack solid didactic references to study on. Others might express the need to practise a specific procedure several times on a task trainer. These two types of learners would be delighted if the debriefer had to offer them a handout explaining the recommendations about the simulation session's topic and give them the opportunity to come back to the simulation centre in order to work on a precise procedure. We sometimes call this debriefer's response to participants' questions the "toolbox", as it provides complementary tools to enhance the understanding of the simulated situation (knowledge and skills) or simply be an invitation for the learners to come back to practise particular skills. It is sometimes included in the form of a list of references and websites at the end of a scenario template that can be shared with learners (Alinier 2011).

The closing words of the debriefer should be about thanking the participants, keeping everything confidential, and hoping that it was a useful experience for them. For example: "Thank you again for your very active participation during this session. Everything that was discussed during this debriefing will remain confidential and nothing will come out of this room. I hope that this simulation experience will be helpful for your future practice".

We should always remember that being an "educator" is an important responsibility, especially when taking the different roles of a debriefer or an instructor according to the simulation modality adopted or the phase of the educational activity itself. Any aspect of the debriefing can have a profound effect on the perception of the overall simulation session for the learners (Der Sahakian et al. 2015; Rall et al. 2000).

2.10 Summary of Some Key Debriefing Sentences

Maintaining a structured approach to a debriefing can be challenging. Improperly phrased questions can lead learners to lengthy, repetitive, or irrelevant discussions or may be perceived as very judgemental or even offensive. It is sometimes useful for debriefers to have access to a list of commonly used sentences or questions that are appropriate to use during particular phases of a debriefing, and Fig. 2.2 has been prepared to that effect. It is based on the personal experience of the authors but also includes elements (sentences and questions) adapted from other published work related to debriefing (Arafeh et al. 2010; Cheng et al. 2015a; Eppich and Cheng 2015; Gardner 2013; Jaye et al. 2015; Kolbe et al. 2016; Kriz 2008; Lavoie et al. 2015; Sawyer and Deering 2013).

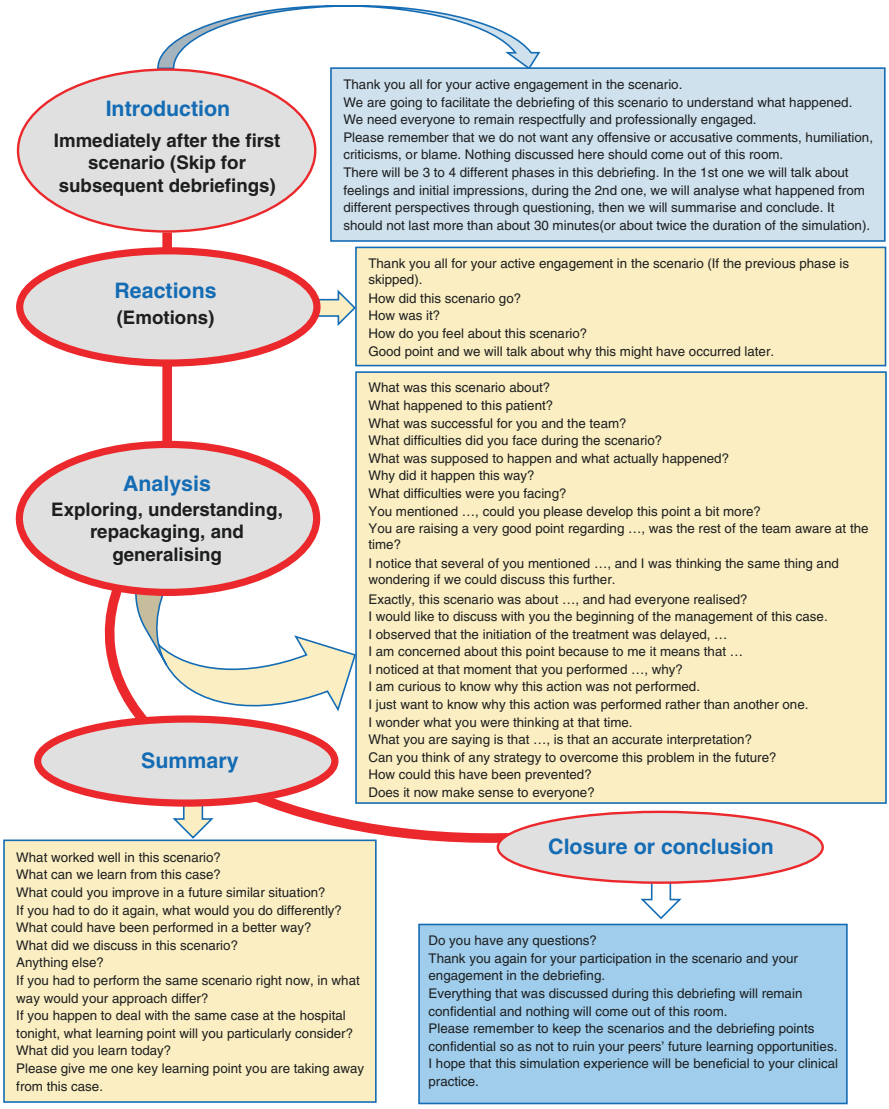

Fig. 2.2 Key debriefing sentences and questions

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General Advice and Specific Issues

3

Abstract

This section starts with a list of general debriefing tips and advice about preventing and handling difficult debriefing situations that are applicable to most circumstances and will benefit simulation educators. It then addresses a series of commonly faced issues or queries that are often discussed in the simulation community. Whether or not to play back the video recording in the debriefing process is often debated, and research is still inconclusive as there are so many possible confounding factors. Similarly, insight into the use of within-scenario debriefing is provided with support from relevant references. An additional approach that can be perceived as being a supportive measure for learners new to simulation-based education followed by debriefing is the provision of a complete demonstration cycle, live or by playing back a recording of the whole process. On the other hand, a real dilemma sometimes faced by simulation educators relates to the mutual promise of confidentiality in relation to simulation session with learners and the potentially very concerning performance or behaviour of a participant. An introduction to rapid cycle deliberate practice in relation to how it affects debriefing is presented. Finally we briefly review the current debriefing assessment tools.

3.1 General Debriefing Tips

Debriefing can feel like the hot seat for the debriefers as they have the task of untangling what the participants did during the scenario. Elucidating their actions and decisions in a tactful manner can be an arduous task and relies on the debriefer(s) having good knowledge about the scenario, its learning objectives, and paid close attention to the participants' interactions with other team members, their patient(s), and the environment. The success of the interaction between the debriefer(s) and the learners is influenced by the climate of professional respect and trust which has been established during the simulation session (Decker et al. 2013). Overall, the debriefing is a

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key phase of any simulation-based educational intervention to help learners reflect on what happened, so they can really assimilate the learning objectives (Alinier 2011).

The debriefers require good communication skills and a particular psychological awareness in the approach to adopt to ensure the most positive learning outcome for the learners. A summary of some useful debriefing tips sometimes inspired by other educators (Der Sahakian et al. 2015; Gardner 2013; Jones and Alinier 2015; Mayville 2011) is presented in Table 3.1 in relation to what needs to be considered before the debriefing, in Table 3.2 for tips related to during the debriefing phase, and

Table 3.1 List of debriefing tips to consider before a debriefing session

• Establish expectations and ground rules from the beginning of a simulation session regarding respect and confidentiality
• Establish a good rapport with the learners to gain their trust
• Add bookmarks or write down the time of specific events during the scenario if you intend to play back these events as video clips during the debriefing
• Keep a mental or written note of all elements you observed during the scenario that need to be debriefed by directing appropriate questions to participants
• Debrief immediately after the simulation to capture immediate participants' reactions
• Acknowledge the limitations of the simulation and relate to real situations rather than defend or defy the critics of the simulation process or technology

Table 3.2 List of debriefing tips to consider during the debriefing session

• Remember to always thank the scenario participants
• If you have ended the scenario before its natural conclusion, briefly mention why (i.e. the learning objectives have been addressed)
• Manage the debriefing input from learners towards other learners
• Decontextualise aspects of the scenario from the participants to balance the emotional and teaching aspects
• Maintain a structured debriefing approach starting with a general reaction phase
• Address the most junior scenario participants to speak first
• Ask open-ended questions (what, why, how, etc.) to really find out what learners want to say
• Use questioning that promotes in-depth reflection and participation of learners
• Do not answer yourself when learners do not promptly respond to your questions
• Reword questions when participants do not respond
• Get learners to respond to their own questions
• Use active listening to encourage constant participation
• Use silence/pauses to encourage further responses from learners
• Direct questions to quiet learners, and ask them to comment on what others said
• Involve all learners in the debriefing discussion, including observers
• Keep a mental or written note of all elements that emerge from the reaction phase and need to be debriefed by directing appropriate questions to participants
• Avoid deterring learners' participation by monopolising the discussion
• Make observations or remarks in a non-offensive manner
• Use the video for debriefing only if it is really necessary and beneficial and framed in a non-offensive manner for the participants
• Check with all learners individually what is their take-home learning point from the scenario

Table 3.3 List of debriefing tips to consider after the debriefing session

• Consider if anything should be changed in the scenario template (the briefing, patient condition, documentation, script from confederate(s) or actor(s), etc.)
• Constantly reflect on your own practice as a debriefer by considering how learners react during the debriefing
• Consider how you come across to your learners and what they really learn from your debriefings
• Seek feedback from co-debriefers and learners about your debriefing approach
• Use Chap. 4 of the book as your personal debriefing diary to write your important debriefing learning events and situations

in Table 3.3 for the points that relate primarily to after the debriefing. Irrespective of whether it is about before, during, or after the debriefing session, the tips help ensure that this phase of a simulation session profits all learners, including the observers (O'Regan et al. 2016).

3.2 Using a Debriefing Preparation Checklist

Using a checklist can be a very useful tool, so no element of the debriefing preparation and actual running is forgotten. It is especially important when working alongside a co-debriefer to ensure both debriefers work in harmony. The key elements of such checklist for debriefing are presented in an article by Cheng et al. (2015b) and have been slightly adapted and graphically represented in Fig. 3.1. In essence and as discussed earlier, it shows that debriefing is not an improvised session and requires some preparation on the part of the debriefer(s) to ensure it is facilitated effectively. The proposed checklist is based on the work from Cheng et al. (2015b) and shows four consecutive phases:

– Pre-simulation: These elements should happen before the start of the simulation session to prevent any potential surprises, especially if the debriefing will be jointly facilitated with someone else. This checklist contains elements that pertain to debriefer reviewing the intended learning objectives, understanding the key scenario events, and agreeing on the roles and responsibilities and their debriefing strategy.
– During the simulation: This part of the checklist encourages debriefers to stay focused on the simulation and to take notes about events they would like to discuss during the debriefing.
– Post-simulation: A short huddle should take place immediately after the simulation, involving the facilitators and actors, to share observations and concerns and agree on what are the key elements that need to be debriefed. The checklist can be used to guide this process and ensure intended versus actual learning objectives are appropriately prioritised through a rapid consensus approach while remaining open-minded about the fact that the reaction phase of the debriefing itself may modify the intended discussion points.

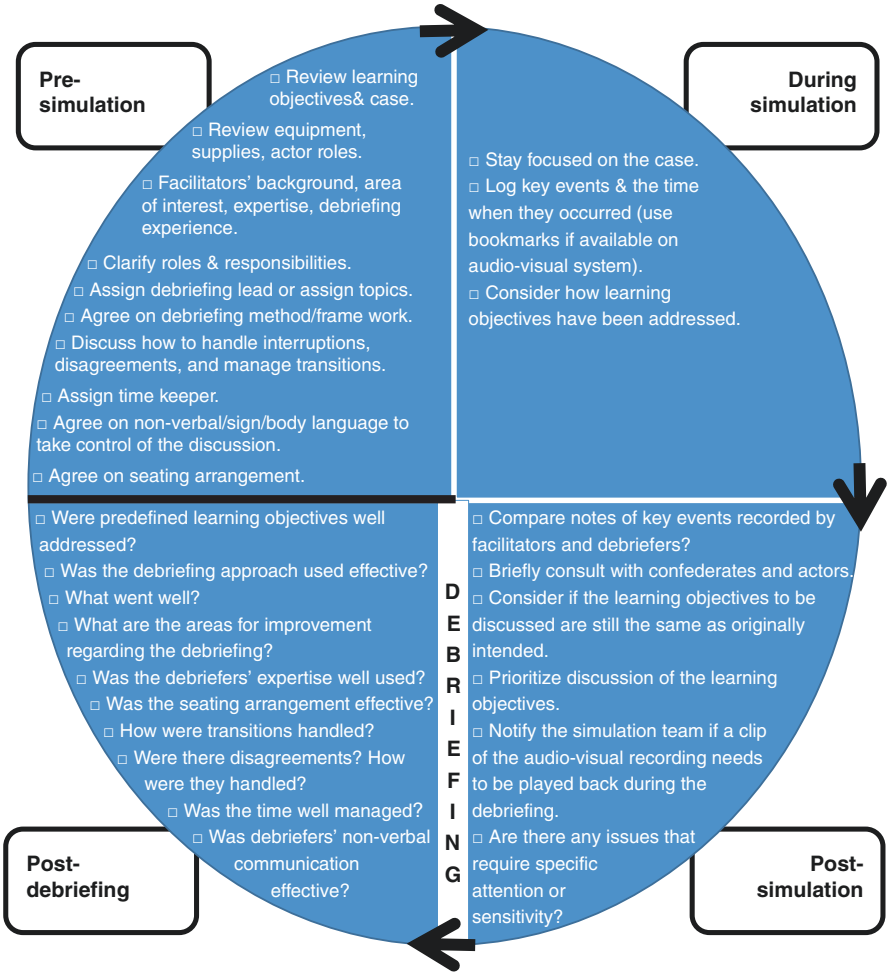

Fig. 3.1 Checklist of points for consideration to facilitate good debriefings (Adapted from Cheng et al. 2015b)

– Post-debriefing: Debriefers are also encouraged to reflect on the experiential learning process they have facilitated through debriefing in order to improve their practice, whether they have conducted the debriefing solo or with a co-debriefer. In the latter case, it is valuable for the debriefers to go through the checklist jointly, so they can mutually agree on how to refine their approach if required.

3.3 Video or Not Video-Assisted Debriefing?

It is very common for facilities used for scenario-based simulation education to be equipped with an audio-video system that allows for live streaming and recording of scenarios (Alinier 2007). Although there are not always demonstrated learning benefits (Savoldelli et al. 2006; Sawyer et al. 2012), some educators favour the use of video-assisted debriefing whereby the facilitators play selected video clips of the scenario (Hamilton et al. 2012) or the entire scenario video at the beginning of the debriefing to allow participants to relive the experience from a different perspective (Dusaj 2014).

Video-assisted debriefing supposedly permits learners to review their performance by providing an objective record, but we should emphasise that adequate guidance is required for this to occur. Four studies compared the use of video-assisted debriefing with non-video-assisted debriefing for simulation-based training and showed no difference in benefit between the two methods of debriefing (Cheng et al. 2014). In a study involving nursing students, skill improvement was higher, and response times were faster in the video-assisted group, as well as knowledge retention, compared to verbal debriefing alone (Chronister and Brown 2012), but other studies demonstrated no real difference (Savoldelli et al. 2006). Many factors come into play when it comes to comparing debriefing methods as the "experimental" approach itself, which could be considered to be the use of the video footage, can be implemented in many different ways. The video may be played entirely before the debriefing starts, it may be played and stopped every time something is worth discussing, or only specific bookmarked segments can be played back to highlight particular events. In a randomised study (debriefing with vs. without video), nursing students reported that their experiences in debriefing were minimally different, especially by helping in making connections between theory and real-life situations (Reed et al. 2013). In a recent Australian study, 24 expert debriefers shared the belief that video was an adjunct to debriefing, but its use varied from almost always to very rarely (Krogh et al. 2015). For the authors, the optimal use of video in debriefing was at most a few short selected clips, with learners oriented to the educational purpose of the particular extracts (Krogh et al. 2015).

In summary, for us the practical use of video-assisted debriefing, in order to maximise learning outcomes, should be limited to selected bookmarked clips in order to provide evidence for the debriefer's observations. These clips should be presented in a neutral tone as scenario facts and associated to questions to the participants to gather their reactions on a specific action. We do not favour the routine use of video with replaying the whole scenario, which would not put sufficient emphasis on the debriefed points and would take too much time. Similarly video clips should not be used to reinforce directive feedback in a judgemental way, as it could be very offensive to the participants. Showing a specific clip and saying "Look what you did wrong here!" is strongly discouraged.

If the debriefer is a "beginner debriefer", we think that the best use of the audio-video recording capability of a simulation session to maximise learning outcomes is during debriefing rather than during the scenario itself. By video recording their own performance of debriefing the participants, with their consent, and reviewing the

video eventually with a colleague, the beginner debriefer can be guided in their own reflective process with an aim to eventually improve or perfect their debriefing performance and therefore improve learning outcomes of trainees (Arafeh et al. 2010).

3.4 Using Within-Scenario Time-Outs to Debrief or Not?

Interrupting a scenario in a "stop-and-go" manner to provide feedback or initiate a debriefing is quite a particular strategy which can be perceived as being "instructor centred" or "trainer led" (Alinier 2007) and provoked by an overprotective feeling whereby the educator does not want the participants to go down the "wrong path". This approach could be perceived to be beneficial to stop participants from learning or practising "wrongly"; however, it also stops them from learning about the actual consequences of their current thought process and actions.

Once this approach is adopted in a scenario by a facilitator, it inherently reduces its level of fidelity especially if it is done in a way that really pauses the scenario. Such breaks may affect the way students engage in the scenario and the actual flow of the care they are trying to provide to their "patient". A study by Van Heukelom et al. (2010) showed that Post-simulation debriefing was favoured by students as it helped them more effectively understand their correct and incorrect actions. In our view, "in-simulation debriefing" is more adapted to practical skills training as an isolated event rather than as part of a scenario.

"Indirect feedback" can be provided during a scenario by a facilitator or "confederate" (imbedded participant) in an acting capacity (Meakim et al. 2013) without really affecting the flow and realism of the scenario by making useful suggestions or offering to take over. Such approach is sometimes useful as a scenario "lifesaver" to ensure that the scenario develops in the expected direction, so learning objectives can still be addressed (Der Sahakian et al. 2015; Dieckmann et al. 2010).

On the other hand, the purpose of scenario-based simulation is generally to provide autonomy to participants by putting them in particular situations to observe how they would manage solely relying on their knowledge, clinical reasoning and practical skills, and teamwork abilities. Not interrupting or interfering with the participants during the scenario allows them to fully experience the consequences of their actions in the safety of the simulation environment and learn from their error which is a key advantage of this training modality.

"Within-scenario" debriefing needs to be considered as a different approach as it meets different participants' learning needs. It promotes reflection in action and hence facilitates mastery learning (Eppich et al. 2015).

3.5 What About Running a Scenario and Debriefing Demonstration?

A demonstration scenario followed by a demonstration debriefing is sometimes requested by learners to better understand what will be expected from them or because they might be nervous and uncomfortable to engage in a simulation-based activity observed by a number of people who might be co-workers, other learners,

or senior clinicians. Although time-consuming, it still provides a valuable learning opportunity for everyone and might be very valuable in some cultural context were such approach is very remote from their traditional way of learning. The demonstration does not necessarily need to be enacted live, but instead a relevant pre-recorded video from a library of scenarios and its associated debriefing could be used to illustrate these important aspects of a simulation session to the learners (Fanning and Gaba 2007). It can either be a scripted demonstration played out by faculty or volunteers with clearly identified roles, so learners understand who are meant to be the "learners" versus the confederates or actors. Alternatively, with informed and written consent of the learners, the actual video recording of a real simulation-based learning experience and its associated debriefing, illustrating basic learning objectives and conducted in an ideal manner, could be used.

3.6 How to Best Handle the Debriefing of a Multiprofessional Team?

When dealing with a multiprofessional team of learners, it is highly recommended to also have a multiprofessional team of debriefers the learners can relate to. They implicitly need to feel represented among the faculty team as it can be seen as a form of reassurance. This also means that the debriefing is likely to last longer as the various professions' perspectives need to be analysed. This approach has already been implemented for a large number of undergraduate interprofessional simulation sessions and generated fruitful discussions (Alinier et al. 2014).

A lack of representation of the key professions involved as learners within a scenario among the debriefers could easily lead to an unbalanced debriefing favouring discussions with a particular group of participants to the detriment of the others. There could be an issue of lack of credibility or misinformation if an educator of a particular profession advises learners from a different profession. An important aspect to consider is that all the debriefers should preferably have received appropriate training in facilitating the debriefing (Lioce et al. 2015) as being a subject matter expert does not necessarily come with the most appropriate ability to facilitate the debriefing in a constructive manner.

The 3-D debriefing model from Zigmont et al. (2011) has been recommended in the interprofessional context, and it can be complemented by other approaches (Becker et al. 2016). Circular questioning, for example, is a particularly useful approach to use during debriefing when learners from different professions engaged in a team-based simulation activity as it promotes dialogue that generally enables learners to understand their interdependencies, but it also needs to be balanced with advocacy-inquiry (Kolbe et al. 2016) as discussed in Sect. 1.8.4.

3.7 What If I Feel I Cannot Keep What Happened Confidential?

There are situations when deficiencies discovered during a simulation session and confirmed through the debriefing might be so concerning that it needs to be discussed again with the participant(s) outside of the simulation setting and even with their

clinical supervisor. One should however remember the initial promise of confidentiality made with the learners and the safe learning environment that the simulation is meant to be. As such, it would be wise to obtain consent from the affected participant(s) prior to externally disclosing any element of concern relating to them and that may have occurred during the scenario or debriefing.

Such situation may relate to the inadequate or disrespectful behaviour of a participant towards their peer(s) or the debriefer(s). Although very unlikely, the tension potentially caused by the stress of the clinical scenario or a poorly worded criticism from an observer could trigger an unexpected outburst from a participant. In that sense, the participant(s) in question could be considered to have violated a fundamental ground rule related to respect, and hence it could be a valid reason for the debriefer to also violate the promise of confidentiality if the situation warrants to be considered by an external disciplinary panel. In a more conventional situation, the facilitator would be expected to retake control of the situation by rephrasing the point being discussed to prevent the escalation of a potential argument (Der Sahakian et al. 2015). "Debriefing with good judgement" helps to alleviate such situation (Rudolph et al. 2007) but requires some form of practice to master (See Sect. 2.6.3).

3.8 What Is Debriefing for Rapid Cycle Deliberate Practice About?

Repetition of simulation practice over several rounds in a row impacts on the way debriefing should be conducted as participants in such events will be much quicker to go through the debriefing process as many elements will not need to be repeated. Indeed rapid cycle deliberate practice (RCDP) provides progressively more challenging simulation rounds in rapid repetition, and it is usually associated with brief, directive expert feedback interspersed throughout the session (Doughty et al. 2015) (see Sect. 1.8.1). It contrasts with traditional debriefing, which seeks to uncover learners' frames through advocacy-inquiry debriefing but does not provide the opportunity for immediate repetitive practice (Doughty et al. 2015). In RCDP, assessment of learner performance and feedback is more instantaneous and directive, which allows for rapid resumption of practice (Patricia et al. 2017). Nevertheless, implementation of RCDP with its short direct debriefings has been associated with an increase in resident's skills in resuscitation (Hunt et al. 2014). The depth of the learning that occurs is an element that should be more researched.

3.9 How to Prevent or Handle a Difficult Debriefing?

A good briefing of the learners regarding the simulation and debriefing process and a clear orientation to the simulation environment and technology used can prevent issues during the scenarios that may translate into a difficult debriefing. It also helps

ensure that any potential technical issues or lack of familiarity with the simulator can be noticed before the start of the scenario. A candidate not being able to hear breathing sounds or to feel a pulse could adversely affect the progress of the scenario or distract the participants, preventing them to progress as expected in the scenario. At this stage, a confederate might still be able to interfere in an acting capacity in the scenario to "redress" the situation by also auscultating the chest (in the correct place) and providing their opinion. This is a good example of the use of a scenario "life-saver" (Dieckmann et al. 2010).

Similarly, if a scenario briefing or introduction is oversimplified, too directive, misleading, or inadvertently ambiguous or if assumptions are made during the briefing phase about the learners' prior experience about simulation, our expectations of them during the simulation, and what they are expected to do for real as opposed to pretend could lead to difficulties in the scenario that may be perceived by participants as unfair to them. This may cause them to react defensively from the onset of the debriefing, and they may remain focused on a particular negative trigger. For example, the participants' way to handle a scenario may differ greatly if the briefing provided is:

> "… A couple present themselves to your clinic. They expect to learn about the outcome of some recent tests which show the husband is HIV positive. Demonstrate how you would break the bad news to the couple".

As opposed to:

> "… A couple present themselves to your clinic. They expect to learn about the outcome of some recent tests which show the husband is HIV positive. Start the consultation and break the bad news".

In the first case briefing, the participant is directly encouraged to address the couple together, which would be a mistake, in terms of respecting patient confidentiality whereas in the second case briefing, it is not specified. From the onset, learners may feel they are being set up to fail or purposefully put in a difficult and unrealistic situation. This would lead them to be taking a defensive stance from the onset of the debriefing and denigrate the realism of the situation or scenario.

In the same example, the main learning objectives could relate to the learner having to demonstrate:

- Good communication skills to professionally ask the couple to first be seen individually, irrespective of their probable intent to have a joint consultation,
- Appropriately disclosing the bad news,
- Speaking with empathy

Once the learning objectives have been achieved, it is normal to bring the scenario to an end to keep to the planed schedule of the session rather than to allow the learner to go through the whole process they probably anticipate having to demonstrate such as providing in-depth counselling and performing the second consultation and

potentially a third consultation with the couple. If right at the beginning of the debriefing this sudden action of stopping the scenario is not appropriately justified by the debriefing facilitator ("Thank you. We stopped the scenario at the moment of the consultation we intended to and in relation to the learning objectives".), the learner's immediate reaction may be to complain that they were not given enough time to finish their consultation(s), hence pushing them also to take a defensive stance.

We recently published with others an article about setting the right conditions for a productive debriefing (Der Sahakian et al. 2015). It includes six propositions:

1. Reflect on your own performances as an instructor (asking for feedback from the learners and peers and being appropriately trained as an instructor who can facilitate learning) (see Sects. 4.2, 4.3, 4.4, and 4.5).
2. Establish simulation ground rules (preparing and briefing the learners before the simulation experience, controlling the timing of the simulation session and the quality of the scenarios).
3. Manage unexpected events and intended learning objectives by using a confederate or actor during the scenarios.
4. Respect the steps of the debriefing process and good practice recommendations regarding learning psychology.
5. Maintain the balance between emotion and teaching by decontextualising the experience from the participants during the debriefing.
6. Manage the input from the peers during the debriefing, so they do not antagonise the learning process.

Debriefings are not always straightforward to manage. It may be difficult to facilitate a debriefing due to cultural differences. The concept of reflective learning in debriefing comes primarily from Western cultures (Chung et al. 2013). All cultures carry significant characteristics that manifest themselves in teaching and learning preferences, practices, and norms. These cultural differences should be considered during the debriefing facilitation process with a culture-sensitive interpretation of simulation-based learning so that learners receive the maximum possible benefit from their debriefing (Chung et al. 2013). It needs to be facilitated in a culturally appropriate manner, which means that some of the recommended approaches may not be viable in particular settings or very difficult to facilitate successfully. Showing the video clip of a demonstration scenario and corresponding debriefing (Sect. 3.5) to an educator local to the cultural context in question might be a wise approach to ascertain the appropriateness of the intended simulation and debriefing approaches to be used.

In other settings, differences in common practices between places of work within the same country and the same culture may create a misunderstanding of performance that can potentially lead to contradictions. At this point, the cultural-historical activity theory approach can provide a useful lens that directs attention to interactions between simulation participants and the context (Eppich and Cheng 2015).

The briefing at the beginning of a simulation session (see Sect. 1.3.1) is potentially a critical mitigation phase to prevent some difficult debriefing situations. Among other things, some of the limitations of the simulation have to be preemptively acknowledged by the facilitators during the initial session briefing or at

the opening of the debriefing and accepted by learners in terms of the "fictional contract" agreement (Dieckmann et al. 2007), but challenges may still be faced by the debriefing facilitators in four different ways:

1. *The facilitator is a beginner or novice in debriefing:* Each session gives an opportunity to train in the complex process of debriefing and develop skills as a facilitator. The rules of early establishment of buy-in, trustfulness, authenticity, active listening, curiosity, and drawing in all participants by directing the discussion to everyone with open-ended questioning are the "ingredients of the secret sauce". What can help the beginner debriefer are the use of cognitive aids to keep on track during the process (see Sects. 3.2 and 4.7) with useful sentences (Fig. 2.2); keeping records of experiences (Chap. 4), as a plus/delta reflection on their own debriefing practice; and possibly videotape their own debriefing (see Sects. 4.2 and 4.3). A novice debriefer should also take advantage of taking the role of co-debriefer in any available opportunity presenting to them, as it will rapidly provide them with valuable experience in debriefing (see Sect. 1.6).
2. *There is a time issue for debriefing:* Here, the most important is to establish the debriefing structure, as a three-phase process, even if each phase is shortened. It will fulfil most of the debriefing objectives (but not all) and allow participants to get familiar with the debriefing environment.
3. *The debriefer is facing a difficult situation:* Debriefing a senior participant, like a faculty or well-respected and experienced clinician, is often a challenge for the novice debriefer, as a senior participant will be more reluctant to reflect on their practice and will often assume their performance is correct or may even try to take control of the debriefing.
4. *The debriefer is dealing with difficult learners:* This often represents the most stressful situation for the debriefer, as most debriefers do not know how to handle appropriately difficult learners, especially as it may negatively impact on the simulation session overall and the other learners. Here we propose a short approach to difficult debriefing by displaying some vignettes (Table 3.4) although a whole book could be dedicated to that topic.

Despite a good briefing and specific attention to cultural differences or practices, facilitation may still become difficult if during the debriefing phase, the debriefer is facing a "difficult" learner (Table 3.4). It could be a learner who remains very defensive or isolated and silent, with sometimes even self-depreciation. Such individuals may require to be managed differently, for example, by adopting a teaching and learning approach that is more interactive and with an even smaller group of learners. On the opposite, during a debriefing, it could happen that violent emotions emerge, as well as debates or criticisms from other participants. This situation should be quickly handled by the facilitator (restating the ground rules of debriefing, Sect. 2.2) to keep the debriefing process on track and avoid further tensions within the group. The facilitator's expertise in debriefing plays an important role in managing and resolving adequately such situations. Being recognised as the person who can resolve the above difficulties is a very valuable quality for a debriefer.

Table 3.4 Vignettes of debriefing with difficult learners (Adapted from Akroid (2016))

Vignettes	*Threats*	*Suggestions*
The gamer A participant refusing to engage because it is "all a game"	– Disconnection from the educational purpose – Diversion of debriefing to discussion of limitations of mannequin, environment, equipment, etc. – Loss of buy-in and engagement of the group	– Acknowledge limitations of the simulation, and remind participants of the fictional contract – Important learning can take place regardless of these limitations – Refer to committed to treating the simulation scenario like a real medical event – Remind of responsibilities towards others' learning – If completely disengaged or disruptive, consider exclusion from the session
The blamer A very self-critical participant	– Self-depreciation and loss of self-confidence of an individual – Loss of trustfulness in simulation and debriefing that can contaminate the group – Inhibition of engagement in the debriefing process – Diversion of the debriefing to an individual's problem	– Explore the reasons for being unhappy – Acknowledge it is stressful for all – Focus on team dynamics more than on individuals – Help to see positives – Use positive peer feedback – Encourage the group to support – May require individual support
The shamer An aggressive participant who criticises other participants	– Disruption of debriefing atmosphere that can lead to an open conflict zone – Loss of oversight of educational objectives – Loss of team spirit and performance	– Remind the rules of debriefing: trustfulness, mutual respect, curiosity, etc. – Remind that debriefing should be constructive – Encourage focus on team performance – Zero tolerance on rude or personally offensive comments
The weeper A tearful participant during the debriefing	– Disruption of debriefing atmosphere that becomes sad – Loss of engagement of the group – Diversion of the debriefing to an individual's problem	– May be normal response to anxiety for some participants – Acknowledge it is a stressful experience for all – Use group for support – Encourage to "recompose" to mentally rejoin the session as soon as possible – May require individual counselling or feedback
The homer An unsafe but affirmative, convinced participant who is unaware of his/her misunderstanding, like "Mr. I-know-it-all"	– Loss of oversight of educational objectives – Polarisation of the discussion between the participants – Very difficult closure of performance gaps – Ambiguity of understanding what is to be learnt from the simulation by other leaners	– The use of factual approach, possibly video if a procedure was involved – Explore performance by advocacy-inquiry – Introduce a part of relativity to the assertions, like a "grey zone" – Use peer feedback to redirect to correct understanding – Use team dynamics to force understanding of malpractice – Use protocols or recommendations to demonstrate deviation from expected practice – May need fallback if unsafe behaviour persists, i.e. escalation

Table 3.4 (continued)

Vignettes	*Threats*	*Suggestions*
The defensive A participant evoking any cause (lack of realism, etc.) to justify a gap in performance	– Loss of oversight of educational objectives – Risks of not being faithful for "the" participant – Loss of engagement of the group – Difficult closure of performance gaps	– Acknowledge all the limitations of simulation: mannequin, equipment, scenario – Important learning can take place regardless of these limitations – Refer to commitment to treating the simulation scenario like a real medical event – Remind of responsibilities towards others' learning – Encourage focus on team performance
The quiet A silent or introvert participant	– Non-acknowledgement of one individual – Loss of crucial feelings and/or reactions – Misunderstanding of what was really happening during the scenario – Lack of team functioning	– Direct questioning to the silent learner for emotions and reactions (upset by something?) – Acknowledge it is a stressful experience for all – May be normal response to anxiety for some – Importance of team dynamics: each one has a role – Explore relations with team leader and other members

3.10 How to Assess Debriefing?

Semi-quantitative or qualitative debriefing assessment tools should not be considered as tools for assessing debriefing but tools for assessing performance during simulation that can be used to conduct debriefing on the specific areas of gaps in performance. Debriefing itself can be assessed from different perspectives, more or less objectively, depending on what aspects are considered and who is observing the facilitator's performance.

In 2010, Simon et al. developed a behaviourally anchored rating scale named DASH (Debriefing Assessment for Simulation in Healthcare) (Brett-Fleegler et al. 2012; Simon et al. 2010) to identify the extent to which learners or co-debriefers perceive that another debriefer demonstrated six elements crucial to an effective debriefing session following a simulation experience. The six parts of this scale relate to:

1. Establishing an engaging learning environment
2. Maintaining an engaging learning environment
3. Structuring the debriefing in an organised way
4. Provoking engaging discussions
5. Identifying and exploring performance gaps
6. Helping simulation participants achieve or sustain good practice

Overall, these six parts are composed of a total of 20 items. All items describe specific behaviours and are applicable in a variety of environments. Although from

an assessment perspective this contains subjective elements, it provides a useful guide for facilitators to ensure they adhere to high-quality debriefing principles (Brett-Fleegler et al. 2012). In use, the attention facilitators will have to pay to the different elements of DASH will vary greatly depending on the type of learners. A varying degree of emphasis may be required on the different elements depending on the outcome of a scenario or the level of experience of the learners. For example, some learners may require the debriefer(s) to constantly ensure the debriefing remains structured to ensure no point gets omitted, while with other learners, the facilitators will need to put more effort on provoking an engaging discussion to really explore the mental frame or rational of the participants behind certain actions. Psychometric tests show that DASH is a valid and reliable scale (Table 3.5) that is widely used to objectively assess debriefing (Craft et al. 2016). A student version of DASH was later developed to assess the participants' experience (Rudolph et al. 2016).

The same year (2012), Arora published the OSAD (Objective Structured Assessment of Debriefing) scale (Arora et al. 2012). The OSAD is an assessment tool initially designed to assess surgical simulation debriefing practices. It consists of eight categories related to debriefing: approach, environment, engagement, reaction, reflection, analysis, diagnosis, and application. It has been demonstrated to have strong interrater reliability and internal consistency and has been used to demonstrate an improvement in both frequency and quality of debriefing after an educational intervention (Ahmed et al. 2013; Arora et al. 2012). It is also suggested that OSAD may be used for formative purposes as a teaching tool for new debriefers (Paige et al. 2015). In their article on faculty development, Cheng et al. (2015a) compared DASH and OSAD and suggested that these tools be tested in other contexts and be used formatively to track debriefing performance of educators over time.

The same year that the DASH rating scale and the OSAD scale were published, Reed (2012) developed the Debriefing Experience Scale. It is a subjective scale consisting also of 20 items, designed for simulation in nursing education, describing the experience and importance of debriefing for a nursing student. It was divided into four subscales:

- Analysing thoughts and feelings
- Learning and making connections
- Facilitator skill in conducting the debriefing
- Appropriate facilitator guidance

Although addressing primarily, the nursing student population Reed's scale has the potential to be used with other professions, but further psychometric testing based on a different population sample is recommended by the author. The key characteristics of that scale are presented in Table 3.5 alongside information from the other scales reported in this section.

Three years later, a Norwegian team retested the Reed's scale and found a lower internal consistency, especially in the domain dealing with the importance of debriefing (Tosterud et al. 2015). It should be noted that this was done based on a

Table 3.5 Debriefing assessment scales

Authors, year	Settings, names	Observers	Items	Ranking	Cohort, no.	Scenarios	Statistics (CA, ICC)
Brett-Fleegler et al. (2012)	Simulation DASH	Objective (114 international debriefing experts)	20	7-class Likert	3 debriefings (=3 different types of learners)	PEA due to pneumothorax	Overall CA = 0.89 Overall ICC = 0.74 From 0.57 to 0.68 in subparts
Arora et al. (2012)	Surgery Simulation Objective Structured Assessment of Debriefing (OSAD)	Objective (33 international surgeons and OR personnel, UK, USA, Australia) + experts panel ($n = 7$)	8	5-class Likert	20 debriefings	Not described	Content validity index = 0.94 Overall ICC = 0.88
Reed (2012)	Simulation Debriefing Experience Scale	Subjective (nursing students)	20	5-class Likert	130 debriefings (nursing students)	Obstetrics, intensive care	Overall CA: Importance CA = 0.91 Experience CA = 0.93 CA from 0.61 to 0.89 in subscales
Tosterud et al. (2015)	Simulation Debriefing Experience Scale	Subjective (nursing students)	20 and then 18	5-class Likert	138 debriefings (nursing bachelors)	Not described	With 20 items: Overall CA: Importance CA = 0.64 Experience CA = 0.86 CA from 0.27 to 0.84 in subscales With 18 items: Experience CA = 0.91 CA from 0.64 to 0.87 in subscales
Bradley and Dreifuerst (2016)	Simulation Debriefing for Meaningful Learning Evaluation Scale	Objective (three debriefer experts)	33	0/1	15 debriefings	Not described	Overall CA = 0.88 Subscales' CA: Engage CA = 0.39 Explore CA = 0.51 Explain CA = 0.73 Elaborate CA = 0.79 Evaluate CA = 0.78 Extend CA = 0.70 Overall ICC = 0.86

CA Cronbach alpha coefficient, *ICC* intraclass correlation coefficient

carefully translated version. They removed two items from the scale and obtained a higher Cronbach alpha coefficient in the Debriefing Experience Scale, with a total of 18 items, but still had Cronbach alpha values below the acceptable level of 0.70 on the subscale level (Table 3.5).

In 2016, Bradley and Dreifuerst (2016) published a testing of the Debriefing for Meaningful Learning Evaluation Scale based on only 15 videos of simulation-based training but with objective assessment from three debriefing experts. They concluded praising the overall validity and reliability of their scale; however, several subscale domains are below the acceptable level (Table 3.5).

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My Personal Diary of Debriefing Experiences

4

Abstract

This chapter has intentionally been included in this pocket book with blank pages for you to record key personal learning events as a debriefer, whether they are linked to model or exemplary debriefings in which you or your co-debriefer amazingly disentangled interesting learning gaps, closed a performance gap, or allowed for a difficult situation to develop through minimalistic environment orientation, misleading scenario briefing, or inadequate management of the learners' input in the debriefing. These are learning experiences that you may eventually forget over time and are really worth writing down, so you may remind yourself in the future and share these valuable experiences with others you may eventually mentor to become the next generation of debriefers. We advise you not to write any names or clear identifiers in this diary as the learning diary should be more about the actual events rather than the individuals involved. The first section of this chapter is for this pocket book's owner to describe who they are as a professional and as a debriefer, hence providing a context for their debriefing practice and maybe identify gaps. The second and third sections are the platform for a personal reflective plus/delta analysis of their debriefing practice encompassing all key phases for which they need to develop mastery to become a proficient and effective debriefer. In the fourth section, the book's owner is encouraged to seek and document feedback from peer debriefers, mentors, and learners and reflect upon that valuable information to refine their debriefing practice, while Sect. 4.5 is the place to describe and reflect on key debriefer learning episodes. Finally the last two sections are, respectively, to write down newly identified and valuable debriefing references and resources but also provide cognitive aids that can help guide the briefing and debriefing phases of a simulation session.

D. Oriot, G. Alinier, *Pocket Book for Simulation Debriefing in Healthcare*,
DOI 10.1007/978-3-319-59882-6_4

4.1 About This Diary's Author

Owner of this book: _____

Briefly summarise how do you perceive yourself as a debriefing facilitator and how do you think other people may perceive you. Describe the general settings in which you have opportunities to facilitate debriefings and for what types of learners. You could also discuss your character traits, your professional background, what debriefing training you may have already undertaken, and your favoured approach to closing learners' performance gaps.

4.2 Strengths as a Debriefer

Write down your perceived strengths as a debriefer in the various contexts in which you have opportunities to facilitate debriefings with groups of learners. This includes within your main organisation and, externally, with the different learner groups you generally interact with. Consider this section as the "plus" part of a plus/delta reflection of your own practice as a debriefer. Remember to consider all aspects of preparing for a debriefing starting with the study of the scenario-intended learning objectives and the simulation session briefing with the learners through to concluding a scenario debriefing and a simulation session (see Figs. 1.1 and 3.1).

4.3 Concerns and Weaknesses as a Debriefer

Complementing Sect. 4.2 which concentrated on the positive points of the plus/delta reflection of your own practice as a debriefer, you are now invited to write down your main concerns and perceived weaknesses as a debriefer in the various contexts in which you get to facilitate debriefings with groups of learners. This includes within your main organisation and, externally, with the different learner groups you generally interact with. Remember to consider all aspects of preparing for a debriefing starting with studying the scenario-intended learning objectives and conducting the simulation session briefing with the learners through to concluding a scenario debriefing and a simulation session (see Figs. 1.1 and 3.1).

In particular if you use videotaped debriefing, it might be of importance for you to record the date, the circumstances, the scenario, and what were the weaknesses you identified on the video when you replayed it. Thus, you will be able to monitor your progress over time.

4.4 Appraisal from Other Debriefers

To become a well-rounded debriefer, you are encouraged to seek feedback from your colleagues, preferably with more debriefing experience than you, as well as from your learners. Whether it is part of a formal peer appraisal process or you asking colleagues to objectively provide you a feedback regarding your debriefing practice, it is a valuable exercise to deepen your understanding of your debriefing and its impact on learners. Obtaining feedback from the learners can also provide valuable insight about how you are perceived and whether or not you make them feel at ease. The input from learners may not be very insightful regarding the educational effectiveness of your debriefing approach as their primary concern may differ from theirs. They often mainly feel the need to know how you think they performed as opposed to wanting to know exactly why they performed the way they did by engaging in a reflective process to explore what underpinned their performance.

As suggested in Sect. 3.3, recording a debriefing session (with consent from all participants) in order to review your performance as a debriefer(s) can be a very valuable exercise. After having watched the video on your own to enable you to reflect on your performance, the next step could be to review it with a more experienced debriefer who can also provide additional feedback and maybe some suggestions as to how it could have been better managed or managed differently. Remember that there is no single best way of doing it and that eventually "all roads lead to Rome", so do not be disheartened by all critical comments.

The following pages can be used to write down common remarks or feedback you receive from peer debriefers or learners regarding your own debriefing practice.

4.5 Personal Learning Points

Every scenario or simulation episode debriefing differs and teaches us something that we have either managed well or makes us realise we missed something at some stage during the overall simulation session that would have made a difference to the debriefing session. This section is meant to be used as your personal diary as a debriefer. You are strongly encouraged to write down all key learning episodes in your role as a debriefer. Reflect on what happened, why it happened, and how it could have been prevented. Is it something new to you, or did you actually infringe on one of the simulation design or debriefing facilitation rules? If the latter, were you aware, and what pushed you to deviate from accepted recommendations or make a wrong assumption?

4.6 Important Debriefing References

In parallel to the strengths of your debriefing practice and concerns you have identified earlier, you are encouraged to further consider the information provided in this book as well as search the literature to identify how the potential issues you have raised can be addressed. You can write down newly identified or useful references on the blank pages of this section. It may include recently published journal articles, other books, as well as websites and other online resources you find over time as you refine your debriefing practice.

4.7 Briefing and Debriefing Cognitive Aids

Over the next few pages are some detachable tools to guide debriefers in the key phases of a simulation-based training session. The following pages contain cognitive aids that can be photocopied (for personal use) or detached from this book to help facilitate, respectively, the briefing and debriefing processes of a simulation session until the steps become second nature to the facilitator. Please note that all the elements and examples cited need to be modified to reflect your actual environment and how medical devices may have been adapted for simulation usage versus those that may be identical to what your learners are familiar with in terms of functionality.

4.7.1 Simulation Session Briefing Card

(Extracted from Oriot D, Alinier G, 2017. Pocket book for simulation debriefing in healthcare. Springer. ISBN 978-3-319-59881-9)

4.7.1.1 Prerequisites

1. **Sim team:** Complete and choice of the debriefer and co-debriefer made
2. **Mannequin/model/standardised or simulated patient and equipment:** Ready to be used
3. **Audio-visual system:** Ready for recording and live streaming to observation area

4.7.1.2 Introduction

1. **Welcome:** "Welcome to the simulation session and thank you all for your participation. Have you ever taken part in a simulation session before? How did you feel about it?"
2. **Broad learning objective:** "So today the aim of the simulation session is to…".

4.7.1.3 Pre-briefing: Simulation

1. **Learning experience:** "Simulation is an experiential learning approach besides observation and abstraction, and which requires your physical engagement in the scenario with thinking aloud. It is an interesting learning experience".
2. **Place of errors:** "In simulation the place of error is important, as we only learn from our errors, and everybody does errors—I do errors like everybody else. If there is a place to do errors, it is here during this simulation session!"
3. **Safety:** "This experience will be safe for you as there will be no offense, no criticisms, and that everything will be kept confidential. So, don't be afraid as you can make errors and release your anxiety about it during the debriefing phase that will follow each scenario".
4. **Rules:** "I will ask you to follow the rules of mutual respect, confidentiality, and trustfulness, and to display an appropriate behaviour, especially during the debriefing phases. Please do not communicate with one another at the end of a scenario until we are all ready for the debriefing".
5. **Structure of the session:** "After this general introduction and orientation, the simulation session will be divided in 3 parts: briefing, scenario, and then debriefing".

4.7.1.4 Orientatiom: Simulator and Its Environment

1. **Location:** "You are here in a [simulated trauma resuscitation room/consultation area/ICU, etc.]".
2. **Description of the simulator/model/standardised or simulated patient:** "Here is the simulator/model/standardised or simulated patient… with its features, its realism, and its limitations".

- What is possible: "It does … and …. It is possible to assess… and to perform…". "You can touch and test the simulator (Listen to auscultation sounds, feel pulses…)".
- What is not possible: "But this simulator/model has some limitations: it does not have… and …. It is not possible to assess … and … on the mannequin and you may have to request … (capillary refill, skin appearance, etc.). There are things you will only pretend to do like … (e.g. drawing blood, sending blood samples for culture, etc.)".
- Adapt this section accordingly to your local context if you are using a standardised or simulated patient.

3. **Technical environment:** "You will have this technical environment for managing the patient. Are you familiar with this equipment?" "Please take note that such equipment works differently from what you could expect. (e.g. oxygen supply, vacuum, etc.) but that other pieces of equipment are fully functional (e.g. bed, defibrillator, etc)". "You can explore the environment and check medical equipment, contents of the crash cart and other items available…".

   - What can be accessed: "If you need … and … you can access this equipment here in this room (cupboards). If not here, just ask for it on the phone".
   - What cannot be accessed: "If you need for example a chest X-ray you will have to pretend to request it".

4. **Potential support:** "If you need a phone to call… here is the number to dial. You can also call for a rescue team".
5. **Fictional contract:** "I am expecting from you to perform on this mannequin/standardised or simulated patient in this environment as if it was a real patient (fictional contract), but notice that thoughts have to be verbalized. We will let you know when the scenario is finished by a specific sign or verbal command".

4.7.1.5 Scenario: Briefing of the Scenario

1. **Setting:** "You are working in such clinical scene at present. The time of the day is…".
2. **Patient history** (if it is to be obtained as one of the learning objectives): "This patient named… has … and …".
3. **Constitution of the team and facilitator(s):** "I want you to assume a role as part of the team talking this scenario". "In this scenario you will have … as a facilitator playing such role in the simulation".
4. **Instructions**:

   - To the participants: "For the scenario your goal is to manage … and … in this patient". "If you need help, please use … and …." (specify how the scenario is usually ending and if the simulated patient can die).

- To the observers: “I want you to attentively follow the scenario”. (If plus/delta form is used: “During the scenario, please write down what you think are appropriate actions on the left side of the sheet, and what you think can be improved on the right hand side”). “When the scenario is finished, you will be given opportunities to contribute to the debriefing by asking questions”.

5. **End of the scenario:** “I will make a specific sign at the end of the scenario”. “At that time, I will ask you to stop and to remain silent until the debriefing starts”.

4.7.2 Debriefing Card

(Extracted from Oriot D, Alinier G, 2017. Pocket book for simulation debriefing in healthcare. Springer. ISBN 978-3-319-59881-9)

4.7.2.1 Prerequisites

1. **Actors of debriefing:** Participants, observers, confederates, actors, standardised or simulated patient, debriefer, and co-debriefer
2. **Timing:** Immediately after the simulation scenario
3. **Specific place:** Participants seating in a comfortable learning environment, away from the "patient", and having derolled from the scenario
4. **Choice of the debriefing objectives:** Related to scenario learning objectives and to observed performance gaps during the scenario or the debriefing or in relation to uncovered discrepancies of situational awareness or diagnosis between team members

4.7.2.2 Introduction

1. **Thanking:** "Thank you all for your active engagement in the scenario".
2. **Aim of debriefing**: "We are going to facilitate the debriefing of this scenario to understand what happened. The aim of the debriefing is the improvement of performance".
3. **Safety and confidentiality:** "We need everyone to remain respectful and professionally engaged. Please remember that we do not want any offensive or accusative comments, humiliation, criticisms, or blame. Nothing discussed here should come out of this room".
4. **Structure of debriefing:** "There will be 3 phases in the debriefing: in the 1st one we will talk about feelings and initial impressions, during the 2nd one, we will analyse what happened from different perspectives through questioning, then we will summarise and conclude. It should not last more than about 30 minutes" (or about twice the duration of the scenario).

4.7.2.3 Reactions: Emotions

1. **Asking for feelings:** "How did you feel?" "How was it?" "How do you feel about this scenario?" (preferably to the most junior and less experienced participant first)

4.7.2.4 Analysis

1. **Description:** "What was this scenario about?" or "What happened to this patient?" (to the leader)
2. **Successes:** "What was successful?"
3. **Difficulties:** "What difficulties were you facing?"

4. **Choice of the appropriate technique:** Directive feedback (knowledge issue), plus/delta, after action review, or advocacy-inquiry (two to four gaps in performance); if the latter:
   a. "I observed…".
   b. "I am concerned…".
   c. "I just want to know why it happened this way" or "I wonder what was in your mind at that time?"
5. **Closure of performance gaps:**
   a. Reformulation and repackaging: "What you are saying is that…".
   b. Generalising: "Has everyone ever experienced such a situation where… such and such…?"
   c. Asking for solutions: "Does anyone have a solution to overcome this difficulty?"
6. **Verification feedback:** "If you had to do it again, what would you do differently?"

4.7.2.5 Summary

1. **Summary of the learning points:** "What did you learn today?"
2. **Asking for questions:** "Do you have any questions?"
3. **Providing a "toolbox":** Didactic handouts, references, and offer to come back to the centre for simulation of a specific procedure on a task trainer

4.7.2.6 Closing Words

1. **Thanking:** "Thank you again for your participation in the scenario and your engagement in the debriefing".
2. **Reminding confidentiality:** "Everything that was discussed during this debriefing will remain confidential and nothing will come out of this room. Please remember to keep the scenarios and the debriefing points confidential" so your peers can equally benefit from this learning experience without knowing exactly what scenarios they will face.
3. **Hope for benefit:** "I hope that this simulation experience will be beneficial to your clinical practice".

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D. Oriot, G. Alinier, *Pocket Book for Simulation Debriefing in Healthcare*,
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