How to Cite:
Alnazawi, A. A. (2022). Psychological safety in simulation. *International Journal of Health Sciences*, *6*(S10), 1070–1077. Retrieved from https://sciencescholar.us/journal/index.php/ijhs/article/view/13794

Psychological safety in simulation

Aseelah Abdullah Alnazawi (MSc)
Teaching Assistant, Clinical Simulation Center, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia
Corresponding author email: Nazawia@ksau-hs.edu.sa

***Abstract*---**Simulation-based training has emerged as one of the key education strategies in contemporary practice, allowing an immersive educational experience that recreates aspects of practice scenarios (Cant and Cooper, 2010). Importantly, simulations provide a level of realism (fidelity) that allow training relevant to practice, while providing a safe environment free from the risk of patient injury or harm (Fey et al., 2014). The construction of a psychologically safe simulation environment is challenging, and no single method may be expected to deliver this outcome. The use of pre-briefing, effective leadership, and socially-focused models of teamworking and experiential reflection should be considered in combination to support psychological safety throughout the session.

***Keywords*---**psychological safety, simulation, construction, contemporary practice.

The importance of psychological safety

Simulation-based training has emerged as one of the key education strategies in contemporary practice, allowing an immersive educational experience that recreates aspects of practice scenarios (Cant and Cooper, 2010). Importantly, simulations provide a level of realism (fidelity) that allow training relevant to practice, while providing a safe environment free from the risk of patient injury or harm (Fey et al., 2014). However, it is not only important to consider the safety of theoretical patients within this context, as the learning experience in simulation also allows students or qualified practitioners to avoid the psychological consequences of failure or errors (Fey et al., 2014). Psychological safety is considered a key aspect of the simulation experience, as this reflects the safe nature of the learning environment, where mistakes may be made without repercussions and with the provision of constructive feedback to promote practice improvement (Cant and Cooper, 2010).

Although psychological safety is recognised as a fundamental part of simulation training, it is uncertain if this is consistently implemented by facilitators (Eppich

and Cheng 2015). Furthermore, strategies to optimise the psychological safety of participants in simulation need to be understood from a theoretical and practical perspective to optimise the learning experience (Krogh et al., 2018). The remainder of this paper considers the evidence base for providing psychological safety, including strategies that may be adopted in this regard, personal reflections on psychological safety, and the development of a clear practice improvement process that may be used to ensure psychological safety.

Author experiences of psychological safety

My experiences of psychological safety within simulation sessions derive from my time as a teaching assistant in a simulation centre. I have engaged in a number of simulation sessions involving strategies of various levels of fidelity, including high-fidelity manikin-based training sessions and sessions involving standardised patients (e.g. 'breaking bad news'). These sessions in particular may promote anxiety in students, due to the potential stress associated with clinical situations and the challenging nature of the scenario. I have observed situations where students have been reluctant to make mistakes and seek reassurance on decision-making throughout the simulated scenario, including situations of embarrassment arising due to any errors in judgment.

From a personal perspective, these episodes highlighted how psychological safety may be a challenging concept to implement in a simulation environment and how this may be dependent on the inter-individual characteristics of the group. Confidence and self-efficacy among individuals may determine the degree to which students are susceptible to negative psychological effects during high-pressure situations, and this may have implications for how psychological safety is addressed in practice. Not only does management of the group have to be considered, but a personalised approach to addressing individual sources of distress and the impact this may have on the learning experience should be considered. This insight has guided a review of the literature, focusing on empirical evidence to support the facilitation of psychological safety for students.

Empirical evidence for approaches to facilitating psychological safety

It has been argued that psychological safety is dictated by the facilitator during a simulation-based learning session, whereby the facilitator clarifies the potential for mistakes and lack of judgment (Eppich and Cheng, 2015). Accordingly, the facilitator needs to make clear that the simulation learning environment is a chance for experimentation, risk-taking, and learning, without the risk of humiliation or intimidation (Lopreiato and Sawyer, 2015). However, it has also been suggested that this definition may be too limited and reduces the responsibility of the facilitator to promoting psychological safety, without actively monitoring for compromised psychological safety. Indeed, Gillan et al., (2014) noted that the facilitator should actively monitor the psychological wellbeing of students and should act to identify stress and deal with it appropriately.

Therefore, maximising psychological safety in the simulation context requires not only an initial briefing process that outlines how students should act and what should be expected, but requires monitoring of the simulation, as well as

debriefing (Roussin et al., 2018; Kang and Min, 2019). Pre-briefing can be considered important in establishing rules or contexts for learning (Rudolph et al., 2014), but may not be integrated into the resulting learning experience without continued support towards constructive reflection at the end of the session. Indeed, debriefing is closely linked to psychological safety in the academic literature, providing an opportunity to ensure that simulation events can be processed by learners and that any potential threats to psychological wellbeing are not detrimental to the learning outcomes of the session (Kolbe et al., 2020).

Empirical studies assessing the optimal strategies towards debriefing have been completed and provide insights into optimal processes in debriefing. For instance, a systematic review found that learners have a higher level of satisfaction if objective tools and structures are employed and learners are actively engaged in the debriefing process (O'Regan et al., 2016). However, another systematic review failed to note the value of debriefing as an important event for the learning experience (Issenberg et al., 2005), potentially reflecting data accumulated since the publication date. The attributes of facilitators and strategies that may be used during debriefing have been assessed by Krogh et al., (2016), based on interviews with facilitators and colleague-defined 'expert' debriefers, noting the importance of strategies aligned with social constructivist theories. However, these strategies were not specifically related to the generation of psychological safety in the learning context, while the definition of an expert in the field of debriefing may be considered arbitrary.

Importantly, debriefing is distinct from the provision of feedback, based on the bidirectional and interactive nature of the exchange, where feedback is often limited to a unidirectional evaluation of performance (Burns, 2015). While debriefing has been noted to have multiple stages within modes and frameworks, it has been argued that the practice of debriefing itself is more valuable than the specific model employed (Eppich and Cheng, 2015). Kolb's (1984) experiential learning cycle (Appendix. A) may be a generally adopted schema in debriefing contexts, facilitating a clear structure to student reflection and shared analysis of the session. However, a key barrier to effective debriefing lies in the facilitator failing to ensure psychological safety up to that point, which may limit the contributions of learners in the experiential learning process (Eppich and Cheng, 2015). The creation of a learning environment consistent with effective debriefing needs to be considered in this context, to optimise strategies to guide debriefing, which in itself contributes to psychological wellbeing of participants (Grote, 2015).

Although strategies to facilitate psychological safety have been proposed in the literature, their evaluation is not necessarily subject to empirical analysis. The use of a multi-staged and structured debriefing method has been considered compatible with a psychologically safe environment, including the Team-Guided team self-correction, Advocacy-Inquiry, and the Systemic-constructivist (TeamGAINS) model (Kolbe et al., 2013), which has been shown to have positive ratings associated with learners' psychological safety (Kinnear et al., 2015). This model has a focus on team dynamics, rather than individual learner performance, and therefore provides a basis for analysing group interactions and the formation or effective relationships in simulation contexts (Kinnear et al., 2015). The model has shown utility in debriefing contexts (facilitating effective exchanges between

group members) and promotes the role of the facilitator in guiding student-focused feedback and analysis (Kinnear et al., 2015; Salik and Paige, 2020). However, a comparison of this model with other structured approaches to debriefing and strategies that occur during the learning process (prior to debriefing) has not been completed (e.g. Eppich and Cheng, 2015). Therefore, evidence remains limited regarding how psychological safety may be effectively achieved in practice.

Education role of psychological safety

Two main theories may account for the ways in which psychological safety develop and influence working practice: social learning theory and social exchange theory (Liu et al., 2015). Social learning theory (Bandura and Walters, 1977) highlights how behaviours are acquired on a cognitive level through observation of others; students who are made to feel comfortable and who can observe others engaging in risk-free simulation practice may have an increased level of confidence in risk-taking and exploring their practice (Stocker et al., 2014). In contrast, social exchange theory refers to the dynamic of facilitator and student in simulation contexts, whereby negotiated exchanges occur (Emerson, 1976). When the leader is supportive in nature and provides an environment consistent with psychological safety, students reciprocate by engaging in supportive behaviours, further enhancing psychological safety in this learning environment (Liu et al., 2015). While this may be an important process at a specific moment in time, social learning theory may be associated with more enduring effects on psychological safety and more relevant theoretical perspective to consider.

Indeed, viewing the facilitator role as a form of leadership in the simulation context illustrates how social learning theory may be best suited to defining how psychological safety emerges in practice. Social learning theory draws parallels with a transformational form of leadership, where leaders act as role models and motivators to followers, leading to students developing skills and behaviours consistent with a team approach (Liu et al., 2015). Consideration of the safety and wellbeing of the team is therefore a key approach instilled as a consequence of considering external environmental factors and the team context. In contrast, the social exchange theory is more transactional in nature, leading to a reactive response among students, which is not necessarily consistent with the development of a team-focused mentality.

When considering the broader theoretical basis of simulation, in which cognitive theories of learning are important and often mixed with social theories, it is vital that transformative and experiential aspects of the simulation are optimised (Rutherford-Hemming, 2012). The potential to engage in reflection and abstract conceptualisation of concrete experiences, leading to active experimentation in a roleplay or simulation setting (as defined in Kolb's (1984) experiential learning cycle), relies on a psychologically safe environment, determined in large part by the facilitator-student relationship and emerging social learning of the student in appreciating the perspective of others and in offering support to fellow students. Reflection, in particular, is an important part of this process and allows the student to provide meaningful critique of their own experience and to contribute

to the learning of others, while offering the opportunity for socially-influenced support mechanisms relating to the validity or experimentation and conceptualisation of the learning experience.

Effective promotion of psychological safety in simulation: practical reflections

The final section of this paper considers how psychological safety may be effectively addressed in simulation contexts, based on the empirical evidence presented and analysis of educational theory in this context. Based on the empirical data and theoretical basis of simulation-based psychological safety, the process of debriefing can be considered fundamental in promoting psychological safety in this context. Consistent with social learning theory, the debriefing process should be guided by the facilitator in a transformational manner to encourage students to adopt a team perspective and engage in constructive reflection and learning (Fey et al., 2014).

Numerous strategies need to be employed throughout the simulation sessions to ensure adequate psychological safety, however. Initial ground rules and expectations should be communicated, while supporting the initial aspects of the reflective learning process. By adopting a clear stance consistent with social learning theory, the facilitator may be able to better facilitate the development of transformational leadership styles consistent with the formulation of a team-focused approach to learning among students in a simulation session. The TeamGAINS model (Kolbe et al., 2013; Appendix B) may be used to guide a psychologically safe approach to debriefing, building on the steps taken during pre-briefing and focused socially-oriented leadership during the learning experience. As this model focuses on the development of an effective team, with consideration of team dynamics and relationships, the opportunity for a safe environment to experiment and take risks may be afforded to the individual student, while facilitating individualised learning and support for students.

In conclusion, the construction of a psychologically safe simulation environment is challenging, and no single method may be expected to deliver this outcome. The use of pre-briefing, effective leadership, and socially-focused models of teamworking and experiential reflection should be considered in combination to support psychological safety throughout the session. The TeamGAINS model is one potentially useful model for the debriefing process, but others should also be considered give the lack of empirical data and comparative analyses of model use in this context. The debrief itself is a vital aspect of the simulation learning experience and should be closely integrated with the concept of psychological safety, regardless of the model employed to structure debriefing.

References

Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood Cliffs, NJ: Prentice-hall.

Burns, C. L. (2015). Using debriefing and feedback in simulation to improve participant performance: an educator's perspective. *International Journal of Medical Education*, *6*, 118-125

Cant, R. P., & Cooper, S. J. (2010). Simulation-based learning in nurse education: systematic review. *Journal of Advanced Nursing*, *66*(1), 3-15.

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, *2*(1), 335-362.

Eppich, W., & Cheng, A. (2015). Promoting Excellence and Reflective Learning in Simulation (PEARLS): development and rationale for a blended approach to health care simulation debriefing. *Simulation in Healthcare*, *10*(2), 106-115.

Falloon, G. (2019). Using simulations to teach young students science concepts: An Experiential Learning theoretical analysis. *Computers & Education*, *135*, 138-159.

Fey, M. K., Scrandis, D., Daniels, A., & Haut, C. (2014). Learning through debriefing: Students' perspectives. *Clinical Simulation in Nursing*, *10*(5), e249-e256.

Gillan, P. C., Jeong, S., & van der Riet, P. J. (2014). End of life care simulation: a review of the literature. *Nurse Education Today*, *34*(5), 766-774.

Grote, G. (2015). Promoting safety by increasing uncertainty–Implications for risk management. *Safety Science*, *71*, 71-79.

Issenberg, S.B., Mcgaghie, W. C., Petrusa, E. R., Lee Gordon, D., & Scalese, R. J. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Medical Teacher*, *27*(1), 10-28.

Kang, S. J., & Min, H. Y. (2019). Psychological safety in nursing simulation. *Nurse Educator*, *44*(2), E6-E9.

Kinnear, J., Smith, B., Akram, M., Wilson, N., & Simpson, E. (2015). Using expert consensus to develop a simulation course for faculty members. *The Clinical Teacher*, *12*(1), 27-31.

Kolb, D.A. (1984). Experiential learning: Experience as the source of learning and development. New Jersey: Prentice Hall.

Kolbe, M., Eppich, W., Rudolph, J., Meguerdichian, M., Catena, H., Cripps, A., ... & Cheng, A. (2020). Managing psychological safety in debriefings: a dynamic balancing act. *BMJ Simulation and Technology Enhanced Learning*, *6*(3), 1-10

Kolbe, M., Weiss, M., Grote, G., Knauth, A., Dambach, M., Spahn, D. R., & Grande, B. (2013). TeamGAINS: a tool for structured debriefings for simulation-based team trainings. *BMJ Quality & Safety*, *22*(7), 541-553.

Krogh, K., Bearman, M., & Nestel, D. (2016). "Thinking on your feet"—a qualitative study of debriefing practice. *Advances in Simulation*, *1*(1), 1-11.

Krogh, K., Chan, A., & McNaughton, N. (2018). Another debriefing course! Who benefits?. *Advances in Simulation*, *3*(1), 1-2.

Liu, S. M., Liao, J. Q., & Wei, H. (2015). Authentic leadership and whistleblowing: Mediating roles of psychological safety and personal identification. *Journal of Business Ethics*, *131*(1), 107-119.

Lopreiato, J. O., & Sawyer, T. (2015). Simulation-based medical education in pediatrics. *Academic Pediatrics*, *15*(2), 134-142.

O'Regan, S., Molloy, E., Watterson, L., & Nestel, D. (2016). Observer roles that optimise learning in healthcare simulation education: a systematic review. *Advances in Simulation*, *1*(1), 4-14

Roussin, C. J., Larraz, E., Jamieson, K., & Maestre, J. M. (2018). Psychological safety, self-efficacy, and speaking up in interprofessional health care simulation. *Clinical Simulation in Nursing*, *17*, 38-46.

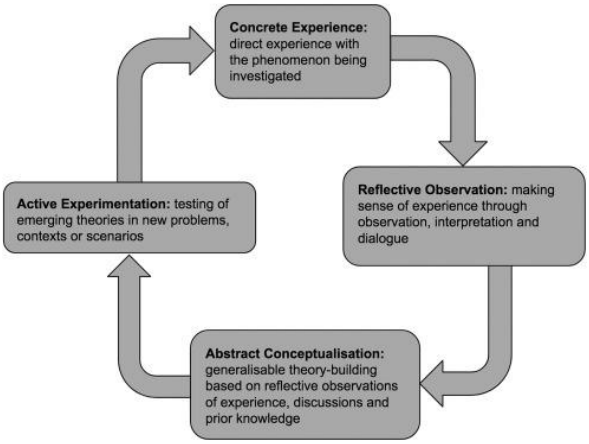
Rudolph, J. W., Raemer, D. B., & Simon, R. (2014). Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simulation in Healthcare*, *9*(6), 339-349.

Rutherford-Hemming, T. (2012). Simulation methodology in nursing education and adult learning theory. *Adult Learning*, *23*(3), 129-137.

Salik, I., & Paige, J. T. (2020). Debriefing the interprofessional team in medical simulation. In *StatPearls [Internet]*. StatPearls Publishing. Available at: https://www.ncbi.nlm.nih.gov/books/NBK554526/ [accessed 2nd July 2020]

Stocker, M., Burmester, M., & Allen, M. (2014). Optimisation of simulated team training through the application of learning theories: a debate for a conceptual framework. *BMC Medical Education*, *14*(1), 1-9.

Appendix A. Kolb's (1984) experiential learning model (Adapted from Falloon, 2019: 139)



Appendix B. TeamGAINS model for debriefing (Kolbe et al., 2013: 549)

Step	Instructor's method	Examples of instructor's communication
1. Reactions	Narrative question	'How did you feel?', 'How was it for you?'
2. Debriefing the clinical part of the scenario, clarify clinical questions, allow for understanding the appropriate clinical procedures	Narrative question	'What happened?'
	Advocacy-inquiry	'I would like to talk about intubation procedures. I saw you re-attempting to intubate using the laryngoscope three times in a row, each time it turned out unsuccessful. I think that you could have intubated faster by using another device such as the Laryngeal Mask or Bag Mask Ventilation. So, I am wondering what was on your mind in that moment?'
	Guided team self-correction	'What alternative device could you have used for intubation?'
	Systemic-constructivist approach: circular question	*(to the nurse)* 'If a senior anaesthesiologist had been present at this moment, what would he/she have recommend to the resident?'
3.Transfer from simulation to reality	Narrative question	'What aspects of this scenario are familiar to you from your 'real' work? What similar situations have you already experienced?'
4. Reintroduce the expert model, systematically discuss the behavioural skills and their relationship to clinical outcomes	Guided team self-correction: elicit reflection about positive behaviour	'Let's go on to CRM-Principle 5: anticipation and planning. Give me an example of a situation where you anticipated a potential complication. What did you do?'
	Systemic question (elicitation meaning of behaviour)	'Having anticipated the potential complication—how did this help you later on?'
	Advocacy-inquiry (using the video)	'Let's talk about shared planning. During that situation I saw you working very quietly together and I was concerned whether each of you knew about each other's plan for the next step. What was on your mind?' (…) *(to nurse)* 'What did you know about her plan in that situation?'
	Circular question	*(Turning to resident)* How could it have been useful for him to know what you were about to do and what you needed?'(…)
	Guided team self-correction: elicit reflection about positive behaviour	'As heard earlier, rising voice when in doubt can be life-saving in anaesthesia. It is also one of the 10 CRM principles. Describe an instance when one of you spoke up'.
	Advocacy-inquiry (using the video)	'In that situation my impression is that you are not OK with what he is doing. I was concerned that you would not let him know this and that he would proceed giving the wrong medication dose. What was on your mind?'
	Observer-perspective, circular questions using the Reflecting Team	*(to trainees who have observed the scenario)* 'What do you think she might have needed from him to speak up in that situation?'
5. Summarise learning experience and finish debriefing	Inquiry	'Which of the CRM-Principles do you consider most important after that simulation?'
	Circular question	'Overall, if inexperienced anaesthesia residents and nurses had watched you during the scenario, what could they have learned from you?'
6. If required, improve clinical skills	Practice clinical skills that were not optimally performed during the simulation	Supervised practice of using the defibrillator

CRM, Crisis Resource Management.