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REFLECTION ARTICLE

Reflections and recommendations on psychological safety in undergraduate simulation-based education

Reflexiones y recomendaciones sobre la seguridad psicológica en educación basada en simulación en el pregrado

Reflexões e recomendações sobre segurança psicológica no ensino baseado em simulação para alunos de graduação

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ABSTRACT

Objective: To propose recommendations for promoting psychological safety in simulation practice based on educators' experiences and an analysis of the concept in simulation-based education. **Development:** Psychological safety originates as a concept meant for teamwork. Subsequently, models for individual and vertical relationships are identified, where personal safety is related to that of others and factors that influence it are recognized, along with their effects. In the educational context, psychological safety is understood as creating a safe environment for learning, which facilitates the development of conversations without fear of humiliation or mistreatment. An adaptation of Clark's four levels to undergraduate education is proposed. Individual student factors such as a proactive personality, emotional stability, and orientation to learning are identified, as well as contextual factors like high quality relationships and student support systems. The relevance of 'Grit' as a concept is highlighted, as well as its relation to psychological safety. Additionally, ruptures in psychological safety during debriefing are detected, and we present strategies to prevent and repair them. The importance of educator training and continuous improvement is emphasized. **Conclusions:**

Managing psychological safety is a challenge that requires an understanding of the concept and relies on specific strategies that educators can access in advance, during a learning scenario, or in the debriefing process, for which training is a key element.

Keywords: Psychological Safety; High Fidelity Simulation Training; Simulation Training; Medical Education; Nursing Education.

RESUMEN

Objetivo: Proponer recomendaciones para promover la seguridad psicológica en la práctica de simulación a partir de la experiencia como educadores y del análisis del concepto en educación basada en simulación. **Desarrollo:** La seguridad psicológica se origina para el trabajo de equipos. Posteriormente se identifican modelos para relaciones individuales y verticales, donde se relaciona la seguridad personal con la de los otros y se reconocen factores que la influencian y sus efectos. En el contexto educativo, la seguridad psicológica se entiende como un entorno seguro para el aprendizaje, que facilita el desarrollo de conversaciones sin temor a la humillación o el maltrato. Se propone una adaptación de los cuatro niveles de Clark a la educación de pregrado, se identifican factores individuales de los estudiantes, como la personalidad proactiva, la estabilidad emocional y la orientación al aprendizaje, así como factores del contexto, las relaciones de alta calidad o los sistemas de apoyo al estudiante. Se destaca la importancia del concepto de *Grit* y su relación con la seguridad psicológica, se presentan señales de ruptura de la seguridad psicológica en los debriefing y estrategias para prevenirla y repararla en este contexto. Se subraya la importancia de la formación de los educadores, así como la mejora continua de ellos. **Conclusiones:** Manejar la seguridad psicológica es un desafío que requiere comprender el concepto y depende de estrategias específicas que el educador puede desplegar de manera anticipada, durante el escenario o en el debriefing, para lo cual la formación del educador es un elemento clave.

Palabras claves: Seguridad Psicológica; Enseñanza Mediante Simulación de Alta Fidelidad; Entrenamiento Simulado; Educación Médica; Educación en Enfermería.

RESUMO

Objetivo: Propor recomendações para a promoção da segurança psicológica na prática da simulação com base na experiência como educadores e na análise do conceito na educação baseada em simulação. **Desenvolvimento:** A segurança psicológica tem origem no trabalho em equipe. Posteriormente, são identificados modelos de relações individuais e verticais, em que a segurança pessoal está relacionada à dos outros e os fatores de influência e seus efeitos são reconhecidos. No contexto educacional, a segurança psicológica é entendida como um ambiente seguro para o aprendizado, que facilita o desenvolvimento de conversas sem medo de humilhação ou maus-tratos. Propõe-se uma adaptação dos quatro níveis de Clark para o ensino de graduação; são identificados fatores individuais do aluno, como personalidade proativa, estabilidade emocional e orientação para o aprendizado, bem como fatores contextuais, relacionamentos de alta qualidade ou sistemas de apoio ao aluno. Destaca-se a importância do conceito de coragem e sua relação com a segurança psicológica; são apresentados sinais de colapso da segurança psicológica no debriefing e estratégias para prevenir e reparar esse problema nesse contexto. Destaca-se a importância do treinamento de educadores e do aprimoramento contínuo dos educadores. **Conclusões:** Gerenciar a segurança psicológica é um desafio que exige a compreensão do conceito e depende de estratégias específicas que o educador pode implementar com antecedência, durante o cenário ou no debriefing, para o qual o treinamento do educador é um elemento fundamental.

Palavras-chave: Segurança Psicológica; Treinamento com Simulação de Alta Fidelidade; Treinamento por Simulação; Educação Médica; Educação em Enfermagem.

INTRODUCTION

There is evidence in the literature of high levels of mistreatment during professional medical training in Chile.[1]

Additionally, public media have reported a critical incident that occurred during the first semester of 2024, involving the death of a young student from a health sciences program, which has been attributed to inadequate academic and work environments.[2]

These facts highlight the importance of addressing the concept of psychological safety and discussing its implications in undergraduate teaching and learning processes.

Including psychological safety is generally among the recommendations for prebriefing[3] and debriefing[4] in clinical simulation. However, its specific implications for undergraduate training are not explicitly considered.

The objective of this paper is to reflect on the issue and propose recommendations to enhance psychological safety in simulated practice, drawing from our experience as educators and analyzing the concept within Simulation-Based Education.

DEVELOPMENT

The concept of psychological safety was originally proposed by Kahn for workplace culture and organizational learning.[5] Later, within the same context of teamwork across various work environments, Edmondson and Lei popularized and defined it as a shared belief among team members that it is safe to take interpersonal risks, expose vulnerabilities, and offer perspectives without fear of negative consequences.[6]

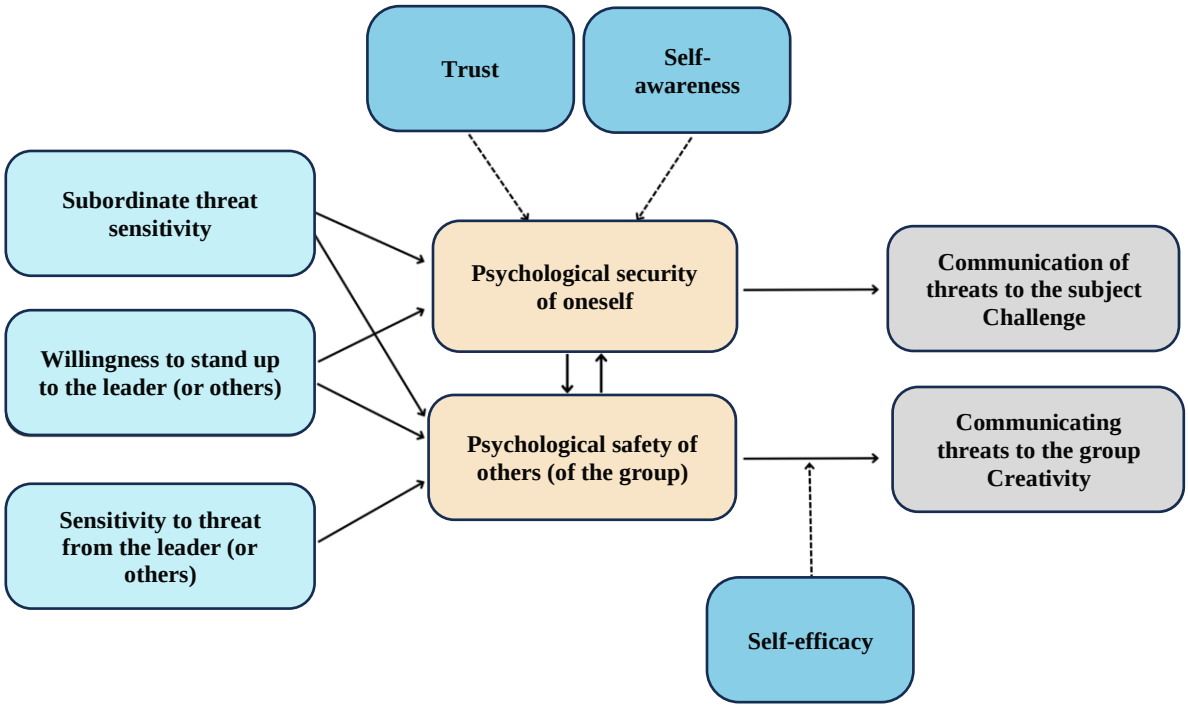
Tynan extended the concept of safety in team settings to include dyadic and hierarchical relationships between individuals, linking personal psychological safety with psychological safety related to others, including the group or team.[7] According to this author, individuals with a high level of perceived psychological safety with others—i.e., those who believe that others feel safe in their relationships—are more likely to express disagreements, provide honest feedback, and point out errors to their supervisors. This indicates that personal and group safety are interdependent.

Psychological safety may be influenced by two sets of factors. On the one hand, there are interpersonal elements related to one's perception of social relationships within the context, such as bonds of trust.[8] On the other hand, there are personal aspects that lead to internalizing one's perception of the relationship at a particular level of psychological state, such as self-awareness or self-efficacy. When examining the literature on psychological safety in the context of knowledge sharing within virtual communities, trust emerges as a crucial element in interpersonal relationships, and its direct effect on knowledge exchange within these virtual communities has been widely accepted.[9] Additionally, self-awareness can be understood as a relevant individual disposition that precedes psychological safety.[10]

In summary, both individual and collective psychological safety are linked within dyadic relationships and teams. In both cases, psychological safety is influenced by sensitivity to threats and the willingness to challenge leaders, and it relates to potential effects on the communication of perceived personal threats and threats concerning others.[4] Furthermore, personal psychological safety allows one to challenge the status quo or hierarchical relationships, while greater group safety acts as a catalyst for creativity, innovation, and collaborative change.[7] Finally, psychological safety is

determined by sensitivity to threats and the willingness to confront others and is influenced by trust, self-awareness,[9] and self-efficacy[10] (see Figure 1).

Figure 1: Adaptation of Tynan's Psychological Safety dyadic model applied to undergraduate education.



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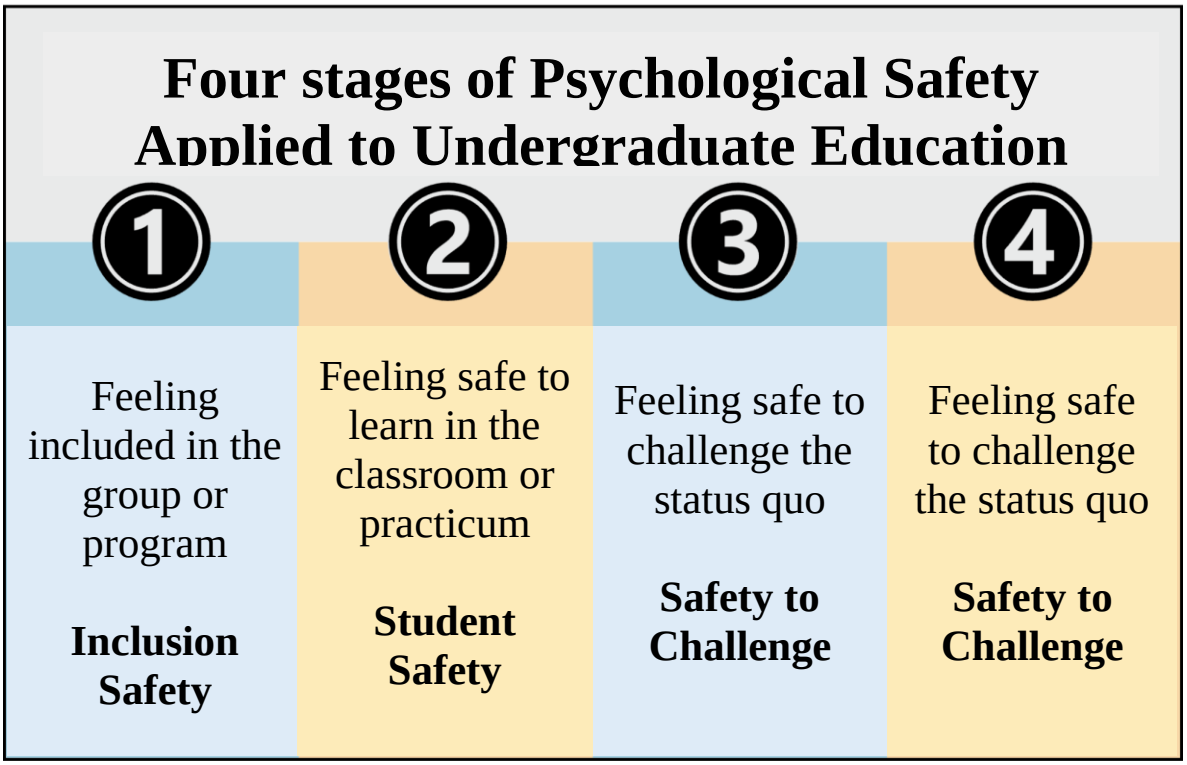
In the context of education, psychological safety is increasingly recognized as a prerequisite for optimal learning in medical training.[11-13]

In terms of how to progress or develop psychological safety within a team or organization (including dyadic or educational contexts), this process involves removing fear from human interactions and basing them on respect and permission.[14] Timothy Clark identifies four stages of psychological safety that may apply to undergraduate contexts: 1) Feeling included: inclusion safety, which could apply to entering the program, being accepted and appreciated by the group and instructors, and having confidence that a correct career decision has been made; 2) feeling safe to learn, which pertains to the student's sense of safety regarding their preparation for learning, their confidence in prior knowledge, and their abilities to address new learning challenges; 3) feeling safe to contribute, which relates to the safety of the contributor within the group or towards the instructor, or the ability to undertake autonomous actions in contexts such as clinical practice, and 4) feeling safe to challenge the status quo: this means that the person who challenges feels safe to do so, reflected by their dissent towards the content delivered in classes or expressed as actions taken or observed in clinical practice (Figure 2).[14]

Figure 2: Adaptation of Timothy Clark's four stages of psychological safety applied to undergraduate education.



Source: Created by the authors.

In the context of Simulation-Based Education (SBE), psychological safety is understood as a safe environment or container for learning; a space in which students feel confident enough to push the boundaries of their knowledge without the threat of humiliation, belittlement, or mistreatment.[4] The concept refers to the sense of safety that allows for effective learning conversations following cognitive challenges in simulation scenarios—challenges that can trigger changes in knowledge and even in students' behavioral models. According to this, psychological safety is the perception of the consequences of taking interpersonal risks within this context of active experimentation and subsequent reflection. For example, it involves taking the risk of admitting uncertainty about a question, acknowledging feelings of vulnerability, or expressing that what they have read or studied contradicts what the educator is saying.

SBE addresses psychological safety because it is understood as a positive factor for learning. Factors to consider include the individual (the student), the environment (the context of simulated practices), and the group (peers in the simulation, including the educator).

Factors of the student that influence psychological safety

Some individual elements that benefit psychological safety include a proactive personality, which refers to the disposition to engage in proactive behavior regardless of external forces present in the learning situation; emotional stability, meaning the student's ability to remain calm, relaxed, and stable in any educational context and activity; and finally, being learning-oriented, or the tendency to focus on developing new skills rather than the anxiety or apprehension about displaying high performance, thereby reducing their exposure to doubtful scenarios. This last attribute is related to

the original concept of “grit”, or perseverance and the willingness to achieve long-term goals.[15] Grit, understood as the individual's determination, operates through extraordinary strength and tenacity and a deep conviction about what the individual wants in life, which can be equated with intrinsic motivation.[15]

Angela Duckworth suggests that students who are willing to engage and orientate towards learning are able to (1) tolerate practice at the edge of their abilities within an unfamiliar and potentially confusing environment; (2) appreciate thorough feedback within the context of demanding professional standards; (3) willingly reflect on new or challenging problems and skills; (4) correct and repeat actions; (5) contemplate and learn from mistakes; and (6) tolerate not knowing the exact answers to complex questions.[15]

Recently, there has been a call to delve deeper into the concept of Grit, linking it to student well-being, which can certainly be related to the development of the field of SBE.[16]

When psychological safety is present, students are more open to corrections and are more willing to participate actively in simulations, as they feel more confident about what they know and can do. Conversely, when students feel unsafe, they fear expressing their opinions, lose confidence in their abilities, and may become silent.

Factors of the context that influence psychological safety

Psychological safety depends on the nature of interpersonal relationships within the educational context and benefits from practices and systems that offer support to students.[8,12]

Human interactions based on commitment, where educators establish high-quality relationships with students, promoting their transition from external regulation to intrinsic motivation, and helping students self-regulate to achieve their goals, also foster psychological safety.[7]

Regarding group dynamics, factors that promote psychological safety comprise inclusive leadership (i.e., leaders' words and actions when they promote and appreciate the contributions of others);[11] characteristics of the job design such as well-defined roles, interdependence, and the autonomy expected of students during simulations, which largely depend on the simulations being well-integrated into the curriculum and the educator optimally planning and implementing them;[3] peer support, which means that educators must be capable of recognizing and managing critical relational information within groups; and mutual trust and respect between students, as well as between students and the educator.[17]

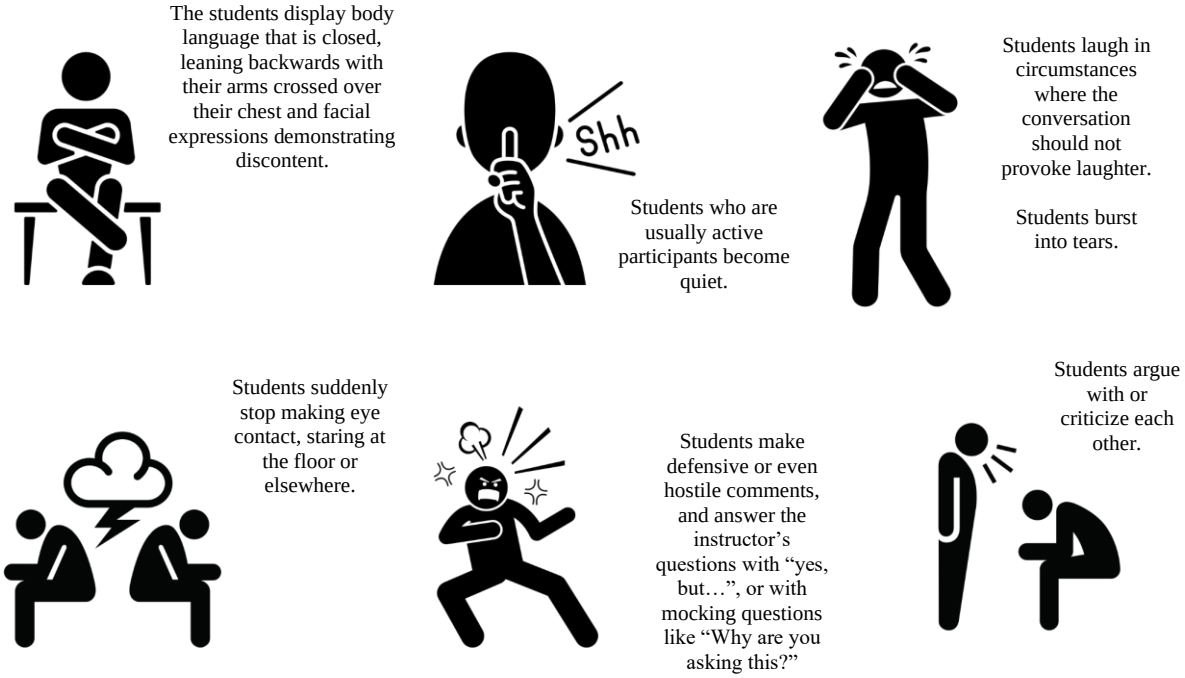
Psychological safety does not eliminate feelings or perceptions of insecurity; it merely allows participants to take the risk to experiment, which often depends on how much they feel the group permits them to do so.[5-7]

Factors of the educators that influence psychological safety

As educators, training in simulation serves as an initial point for developing facilitation skills.[18] It is also important to recognize that there are critical determinants affecting educators' attitudes toward teaching. These include trust in students' abilities, the balance between content delivery and learning facilitation, and the range of active and passive attitudes that the educator may exhibit in their way of implementing simulations and conducting assessments.[4]

An initial step is to recognize signs of an unsafe climate for students (Figure 3).

Figure 3: Attitudes indicating a rupture in psychological safety in undergraduate students.



Source: Created by the authors.

Given that psychological safety is related to the context in which difficult conversations, emotions, or potentially threatening comments can be tolerated and transformed into productive material in the learning process, educators must develop skills to manage psychological safety when it is lost during simulation.[17] Key steps for regulating emotions include: identifying the emotional state of the student through active listening, validating the emotion, fostering understanding of the emotion, accepting frustration as an indication of the desire for improvement, and seeking possible solutions through reflection.[4]

Specific management strategies during debriefing include intervening, addressing power dynamics, reconciling unproductive differences, accepting diverse perspectives, and navigating and overcoming conflict.[4]

Given the importance of psychological safety for effective simulation outcomes, it is relevant to consider the training of educators in strategies for recognizing and addressing ruptures in psychological safety or managing difficult debriefings.[18]

According to the perspective of simulation center directors in Latin America for the year 2018, where 84% of training units were affiliated with educational institutions and had a small number of instructors, educator training and the environment in which simulation is conducted is recognized as one of the most important aspects of the practice.[19] On the other hand, the Global Consensus Statement on Simulation-Based Practice in Healthcare, established in 2024, considers educator training as one of the five pillars of quality in simulation-based education and emphasizes the importance of peer validation through certification processes for both centers and programs, as well as the skills and credentials of educators. This perspective aligns with the vision and certification efforts initiated in our region, which consider the management of psychological safety as part of quality actions in simulation.[20]

CONCLUSIONS

Psychological safety in education is recognized as a safe environment for learning, where students can push the boundaries of their knowledge without fear of humiliation or mistreatment. This condition facilitates the development of effective learning conversations after facing cognitive and procedural challenges.

Individual factors such as a proactive personality, emotional stability, and orientation towards learning are identified, along with contextual factors such as high-quality relationships between educators and students and student support systems. The concept of grit (understood as perseverance and willingness to achieve long-term goals) and its relationship to psychological safety is highlighted, as well as the need to explore this concept further to promote student well-being.

Furthermore, signs of rupture in psychological safety are presented, such as silence or defensive comments on the part of the student, and strategies for repairing it are discussed, including interventions and addressing power dynamics. The importance of training in facilitating simulation scenarios and debriefing is emphasized. It is also important to integrate this into academic communities that incorporate elements of human care beyond simulation, and that there is continuous improvement through feedback to the instructor, as well as reflective practices, typical of high-quality simulation environments.

Managing psychological safety in SBE is an ongoing challenge, dependent on specific strategies that educators can deploy before, during, or after the simulation scenario, and on underlying elements at each of these moments that reflect the instructor's stance on simulation-based education and their personal attributes.

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