Review article

Creating Psychological Safety in the Medical Laboratory Science Profession: From Workplace Culture to Education

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Psychological safety (PS) is needed in medical laboratory science (MLS). All roles in MLS must have an environment where it is safe to make and admit to mistakes. There are evident characteristics of environments with low and high levels of PS. Creating PS for medical laboratory professionals and learners can be accomplished with simple strategies. The strategies can be used for in-person and virtual environments, and by all MLS roles. Assessments can be used to measure if the implementation of PS strategies are successful. The General Health Questionnaire (GHQ-12) is a resource to model survey questions for assessment. There are several positive outcomes after implementing PS strategies in MLS involving workplace culture, teamwork, professional identity, and education. PS creates a practice zone for all roles in MLS.

Keywords: psychological safety, medical laboratory science, workplace culture

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Introduction

Medical laboratory professionals, educators, and learners can create psychological safety in the work and learning environments. Psychological safety (PS) is an individual's perception of an environment to take interpersonal risks.[1] Psychological safety is not trust or trauma from harassment. Knowing the difference between high and low characteristics of PS is important to evaluate an environment and make changes if needed. The different environments to evaluate in medical laboratory science (MLS) include in-person environments such as the medical laboratory workplace, professional development sessions, training, and the MLS education classroom. All the in-person environments could also be virtual; therefore, it is also pertinent to evaluate virtual settings.

Extremely limited, if any, literature exists on the impact of PS in the medical laboratory and MLS education programs. To evaluate the impact of PS more accurately in a medical laboratory, PS must first be created. PS is critical to a work environment as complex and equivocal as MLS.[2]

Creating PS is the responsibility of all individuals independent of their role in the medical laboratory and MLS education. Medical laboratory professionals crave improvements in workplace culture. Educators and learners are entitled to a learning environment where mistakes are accepted. Creating psychological safety for medical laboratory professionals and learners can be accomplished with simple strategies and improve workplace culture.

Background

Psychological safety has many definitions. In general, PS is a perception of feeling safe to engage in interpersonal risk taking.[3,4] An individual's perception evaluates the consequences of admitting mistakes in an environment and believing there will be no rejection in being oneself.[4,5] PS should not be considered a mechanism to remove discomfort and make an environment enjoyable. PS is not workplace violence, harassment, or bullying. Trust and PS are not the same. Trust occurs between two people or entities, and how one views the other.[2,5] PS is between an environment and individuals.[5] Trust is an individual giving another the benefit of the doubt, and PS is the perception of whether others will give the individual the benefit of the doubt.

Psychological safety is important in MLS for professionals and learners. In education, PS is necessary for educational alliance.[6] The educational alliance is a bond between teacher and learner or trainer and trainee to work together on a common goal. An MLS learner must perceive the educational environment as a safe place to make and learn from mistakes. The professional medical laboratory should have the same safe environment. PS creates a space where mistakes are allowed which results in a positive working and learning environment.

There are notable characteristics of an MLS environment that provides a high level of PS. Not surprisingly, open communication is a top indicator of PS.[4,5,7] Table 1 outlines characteristics of an environment with PS. A work environment with PS has four domains: Leader commitment to stress prevention, safety prioritized over productivity, listening, and active participation at all levels.[8] Medical laboratories and MLS education, whether in person or virtual, have similar domains.

Medical laboratory professionals and educators must recognize characteristics of an environment with low levels of PS (Table 1). Negative environments where PS is hidden away may create harmful cultures. Medical laboratory professionals become silent, are disengaged, and may have negative emotions erupt.[7,9] An environment lacking PS will inhibit learning and communication.[6] Individuals taking interpersonal risks in a low PS environment may develop a feeling of incompetence.[9] If signs of low PS are not recognized and changed, a negative working and learning environment may continue.

Many barriers exist prohibiting PS in MLS. Some behavioral characteristics blocking PS include rudeness, aggressiveness, isolation, bullying, and harassment.[2,4,10] Many of these barriers are typical characteristics of toxic

Table 1. Characteristics of Environments with High and Low Levels of Psychological Safety

Environments with High Levels of PS*	Environments with Low (or No) Levels of PS*
Open communication	Silence
Mistakes tolerated	Adverse events
Commitment to growth	Low job satisfaction
Encouragement	Lack of contributions
Motivation	Avoidance
Seek feedback	Defensiveness
Judgement free	Feeling of incompetence
Empathy	Apathy
Autonomy	Dependency
Increased learning	Issues with learning
Engagement	Absenteeism
Awareness	Low or no feedback
Stewardship	-
Self-development	-
Accessibility	-
Forgiveness	-
High retention	-
Reduced anxiety	-
Compassion	-
Healing	-

*Psychological Safety (PS)

Data compiled from: Torralba KD, Jose D, Byrne J. Psychological safety, the hidden curriculum, and ambiguity in medicine [Internet]. Clinical rheumatology. 2020 Mar [cited 2023 Jan 17];39(3):667-71. Available from: https://link.springer.com/article/10.1007/s10067-019-04889-4. Daniels AL, Morse C, Breman R. Psychological safety in simulation-based prelicensure nursing education: a narrative review [Internet]. Nurse Educ. 2021 [cited 2023 Aug 25];46(5):E99-E102. doi:10.1097/NNE.0000000000001057. Available from: https://journals.lww.com/nurseeducatoronline/Fulltext/2021/09000/Psychological_Safety_in_Simulation_Based.32.aspx?casa_token=ICCVifxlXH4AAAAA:apDRsoRMsLCjY9yQSTMxHRAlYeGCSXfiP9vn7M1M-xwASiqygju3S_WayG5Bxhiqlgx3mY2cItmyPP4Xl9K34RE0Ng. Ma Y, Faraz NA, Ahmed F, et al. Curbing nurses' burnout during COVID-19: The roles of servant leadership and psychological safety [Internet]. J Nurs Manag. 2021 [cited 2023 Aug 25];29:2383-2391. Available from: https://doi.org/10.1111/jonm.13414. Newman A, Donohue R, Eva N. Psychological safety: A systematic review of the literature [Internet]. Human resource management review. 2017 Sep 1 [cited 2022 Oct 8];27(3):521-35. Available from: https://www.sciencedirect.com/science/article/pii/S1053482217300013. Johnson CE, Keating JL, Molloy EK. Psychological safety in feedback: What does it look like and how can educators work with learners to foster it? [Internet]. Med Educ. 2020 [cited 2023 Sept 3];54:559-570. Available from: https://doi.org/10.1111/medu.14154. Chou E, Grawey T, Paige JB. Psychological Safety as an Educational Value in Interprofessional Health Education [Internet]. AMA J Ethics. 2023 May 1 [cited 2023 Aug 26];25(5):E338-343. doi: 10.1001/amajethics.2023.338. PMID: 37132619. Available from: https://journalofethics.ama-assn.org/article/psychological-safety-educational-value-interprofessional-health-education/2023-05. Pfeifer LE, Vessey JA. Psychological safety on the healthcare team [Internet]. Nursing Management. 2019 Aug 1 [cited 2022 Oct 22];50(8):32-8. Available from: https://journals.lww.com/nursingmanagement/FullText/2019/08000/Psychological_safety_on_the_healthcare_team.7.aspx?casa_token=xJrreDIB6RkAAAAA:PwRTWs2bNBW9tqp0hX8wDbXF192nLpsERlSSKlffSZrPm7bE39LOY9nf1VN3ucqT6I_JUrK8Thx37bT8JAc45zYelA. Turner S, Harder N, Martin D, Gillman L. Psychological safety in simulation: Perspectives of nursing students and faculty [Internet]. Nurse Educ Today. 2023 Mar [cited 2023 Sep 4];122:105712. doi: 10.1016/j.nedt.2023.105712. Epub 2023 Jan 13. PMID: 36669303. Available from: https://www.sciencedirect.com/science/article/pii/S0260691723000060. Inoue A, Eguchi H, Kachi Y, Tsutsumi A. Perceived psychosocial safety climate, psychological distress, and work engagement in Japanese employees: A cross-sectional mediation analysis of job demands and job resources [Internet]. J Occup Health. 2023 [cited 2023 Aug 26];65:e12405. doi:10.1002/1348-9585.12405. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/1348-9585.12405.

people. However, toxic people may have a feeling of worthlessness resulting in such characteristics. This explains the need to manipulate and control the environment and others because they do not want to feel abandonment.[10]

Absence of employee recognition and role clarity are also obstacles to PS.[10] In MLS, role clarity may be an obstacle for PS because of a lack of common professional nomenclature. The profession uses MLS to describe the individuals and clinical laboratory science (CLS) in some cases which may be confusing to define roles. There is a continued lack of understanding and agreement throughout the profession on the proper use of these terms. In addition, an individual's own shame and fear can be a barrier to PS and fear can lead to disconnection.[10] For example, an MLS who has made multiple attempts at providing ideas to improve a workflow process and consistently the ideas are turned down by the team without explanation. This repeated rejection may cause the technologist to disconnect from the team.

Psychological safety can look and feel different depending on the level of interaction an individual has in the environment. The different environment levels include organizational, team, and the individual. At the organizational level PS is about providing job clarity, executive leader participation, and attention to employee wellness.[4,8,9] Executives, or c-suite leaders, participate by listening to contributions and finding ways to prevent stress.[8] Executive leaders may provide work unit level laboratory leaders with proper job descriptions for staff and provide resources that are readily accessible for MLS professionals and learners on mental health wellness.

Overall, the PS encountered by MLS professionals and learners is at the team and individual levels. PS at the team level is a valuable resource because it is more meaningful.[5] PS creates connections between team members leading to increased learning, innovation, and growth.[9] Team PS typically evolves from a direct supervisor or another laboratory leader through inclusive participation in decision-making and professional development.[4]

At the individual level medical laboratory professionals and learners may demonstrate common characteristics if experiencing high or low levels of PS. Individual characteristics of low or no PS include anxiety, defensiveness, discomfort, and silence.[2,3,9] Anxiety may develop when an individual is concerned about being embarrassed or afraid to make a mistake. The individual cannot view mistakes as opportunities.[3] Silence comes from the motivation to protect self and be risk avoidant which suppresses efforts.[2] An example of a low level of PS in MLS is when a learner in a microbiology laboratory rotation accidently punctures a glove or comes across a biohazardous spill. Rather than report the accident to the educator or trainer, if the learner is experiencing a low level of PS, fear may cause anxiety and silence which leads to the learner not reporting the accident. Conversely, individual characteristics of high PS include increased self-esteem and connections, proactive personality, and emotional stability.[9,11] Individuals may also experience increased autonomy, mutual respect, communication, and a stronger educational alliance.[6,8] The learner in a microbiology laboratory rotation may be more inclined to report an accident or spill.

There are many ways that individuals cope with a lack of PS in the environment. Individuals experiencing low, or no PS, may exhibit a conservation of resources. The conservation of resources (COR) theory is when a threat is detected, whether with resource loss or conflict, and the natural response is to acquire resources.[4,5,7] Resources of PS are social bond-ing and support, rewards and recognition, autonomy, and job security.[4,5] MLS professionals may experience COR when a conflict is detected, and an individual may communicate with others in the laboratory work unit establishing support for one side of the conflict. If PS is missing in a medical laboratory, survival mode for an individual may kick in possibly leading to acquiring social bonding resources, which could create assumptions, gossip, and cliques. The escalation of these behaviors often manifests in a toxic work environment.

Strategies for creating psychological safety

Creating PS in a medical laboratory can be accomplished as a leader, laboratory supervisor, technologist, educator, or learner. All roles can contribute to an environment of high PS with empathy, recognition, and proper communication.[3,9,10] Good communication includes feedback, another resource of a psychologically safe environment.[12] A medical laboratory should have a plan ready to create PS in the professional or educational environment. Create a plan based on whether the environment will be in-person, virtual, synchronous, or asynchronous. Also consider if the audience are employees learning a new skill, professional development, or if the audience are learners in an MLS program. Many of the same strategies to create PS can be used in any environment.

A laboratory leader or supervisor sets the stage for PS. Enforcing openness, transparency, and using supportive language invites participation.[3,9] A leader or supervisor initiates interpersonal risk-taking by encouraging staff to ask questions and give input.[2-4] For example, during a laboratory huddle a supervisor will ask for input on purchasing a new incubator, document suggestions, and take each suggestion seriously.

It is important to note that as a leader, it is not enough to invite participation, it is important that the leader internalize the input or ideas and actively listen to others. A leader can role-model interpersonal risk-taking with hum-

ility, asking genuine questions that do not already have answers, admitting mistakes, and reporting errors.[2] For instance, a technical specialist with oversight of programming instrument assays discovers a calculation error resulting in revised results. Rather than hiding the mistake, the technical specialist documents the investigation and shares the experience with others. This is a normal process, and in a PS environment the individual is comfortable correcting the error without fear of retaliation or punishment.

It is also important for laboratory leaders to utilize employee recognition as a means to create PS.[9] Recognition does not have to be an honor, award, or celebration. Recognition can be given to staff through empathy, respect, and valuing different perspectives.[3,10] An example is a laboratory supervisor who keeps a list of employees, and each workday the supervisor connects with a different employee with intention. The supervisor recognizes staff on a personal level.

Recognition from a supervisor is important, however, recognition from peers not in a leadership or supervisory role may be more impactful in creating PS. Being a medical laboratory professional can sometimes be isolating work creating a barrier for peer-to-peer recognition. Technical work can consume employees and may prevent staff from using soft skills such as emotional intelligence. One way to promote peer-to-peer recognition beyond technical abilities and build soft skills is to rotate willing employees through a 'chief happiness/joy officer' role in the medical laboratory. Placing staff in a leadership-like role with the intent of recognizing joy is a safe environment to practice interpersonal risk-taking. If this effort creates too much anxiety at the individual role, instead form a joy team. Bringing a team together to brainstorm ways to recognize one another and promote dialogue by conveying that recognition creates a psychologically safe environment.[9]

Promoting dialogue through recognition is a good start for individuals in any MLS role toward creating PS to obtain feedback or

participate in difficult conversations. Before offering feedback, especially in difficult situations, the initiator should propose a communication plan upfront and ask for input on the plan from the recipient.[6] The communication plan should include a date, time, and place to meet. Also include what the feedback or conversation will be about and allow the recipient to make changes to the plan. Proposing and following the communication plan helps to create PS for the recipient.

Feedback is considered a resource and therefore should never be withheld.[12] To create PS when there is a power gap between the initiator and recipient engaged in the feedback or conversation, the leader should approach the conversation differently. The leader, whether the initiator or recipient, should bring humility, empathy, and encourage dialogue through open-ended questions and allow time for responses.[6] The leader can show humility by admitting to their own mistakes or knowledge gap. For PS to be sustainable in feedback or difficult conversations, mistakes should be expected of both initiator and recipient, and allow an environment to practice communication.[6] Psychological safety is present when MLS professionals can practice communication, make mistakes, and try again.

Similar to creating PS in feedback, an MLS learning event should have a plan. Learning events such as simulations or professional development sessions taking place in-person can use the Work Team Learning (WTL) model. The WTL model helps to plan learning events to include concepts that create PS.[3] First is preparation which includes orienting to environment, acknowledging emotions, and nonverbal communication.[3] As in feedback, clarify date, time, environment, and topic. Different from feedback, include expectations of participants and objectives of the learning event. In MLS education courses, prepare learners with more than expectations, a syllabus, and contact information. Emphasize the common goals between educator and learner.[7] The educator can communicate to the learners how they hope to learn something new during

the time together or admit to the learners a knowledge gap in the topic and hopes of learning more by engaging with the learners.

Second in the WTL model is confidence in the team. Creating confidence and trust in an in-person team includes the preparation of a non-threatening environment and allowing space for team members to receive clarity.[3] Step two may sound like preparation, but the first step takes place prior to the learning event. Creating confidence and trust in the team occurs at the beginning and during the learning event and is facilitated by the leader. The leader can make sure all questions and concerns are addressed throughout the learning event. For MLS education, create confidence in the team by inviting participation and encourage the freedom of learner discussion and for the learners to draw own conclusions.[7] Freedom of discussion among learners may be easier for the learners if the educator previously emphasized the common goals and admitted to knowledge gaps. By doing so, the educator has created PS and exhibited inter-personal risk-taking.

Next in the WTL model is explicit and implicit actions. Actions or conduct of team members creates PS through transparency, confidentiality, respect, and nonverbal communication such as eye contact.[3] During the second step, confidence in a team, the leader can establish confidentiality and respect as an expectation by explicit verbal communication. Then all participants of the learning event must follow through to maintain the psychologically safe environment. Participants can accomplish this by not interrupting other participants, being aware of facial expressions, and not repeating any sensitive information shared during the learning event. MLS educators must acknowledge emotions coming through nonverbal communication during the learning event.[3,7] When uncomfortable emotions are expressed, respond with respect, and continue to encourage communication and participation.[7] For example, during an in-person MLS professional development session, a participant displays shaking of the head, eye rolls, and sighs. Without interrupting another participant, the educator asks this participant to share their thoughts. The educator's nonverbal expressions remain neutral, and the tone of voice is inviting.

Finally, the WTL model evaluates the outcomes. The outcomes can be products, consequences, or effects and include anxiety, confidence, and engagement levels of team members.[3] To evaluate the outcomes of a learning event, a survey can be given to the participants. The survey should include assessment of the participant's anxiety or stress level before and during the event, and confidence of knowledge before and after the topic(s) discussed.

The leader of the learning event can evaluate the engagement level of the participants by active dialogue during the event and survey responses. An MLS educator should evaluate whether the participants performed as a team, and whether the event was learning-centered. Keeping the team learning-centered encourages PS and growth.[7] Learner growth occurs because the environment is deemed safe by the learners, allowing more inter-personal risk-taking. The educator should also provide positive feedback to the learners and reward growth over performance.[7] The positive feedback from the educator to the learners is reward or recognition of the learners' growth.

The most important WTL model concept used in creating PS in virtual MLS education is preparation.[3,7,11] Virtual MLS education environments, either synchronous or asynchronous, must create PS. Building positive and trusting relationships with learners can be more challenging in a virtual environment where live communication is used sparingly, if at all. An educator can build transparency and reduce anxiety by preparing learners for virtual interactions and communications. An example of preparing for a virtual educational experience is to hold a virtual orientation before a course, simulation, or event for learners to interact with the learning management system,

work out technical difficulties, and ask additional questions. An opportunity for a virtual and live interaction with the educator during the orientation should be offered. If the education event duration is short or only offered asynchronously, the first few minutes should include instruction to help the learner engage in the educational process.

Additional changes to a synchronous virtual MLS learning environment can be made so learners come to expect a non-intimidating experience.[3] The strategies are simple and may have a large impact for the learners. Do not require cameras to be on and allow communication through a chat feature.[13] Limit participant size to ten learners or less and do not record the event when possible.[13] If recording is necessary, inform learners recording will take place. If possible, allow learners to self-schedule or have flexibility in scheduling a learning event. These strategies give the learners autonomy to choose how to create a psychological safe space best for individual learning in a virtual and synchronous environment.

Another strategy to create PS for new MLS professionals or students is through near-peer mentoring. Near-peer mentoring for new professionals is when mentoring is more relatable between mentor and mentee.[14] For example, an experienced MLS professional may be the best individual to train a new professional, however, they may not have much in common with each other. Pairing the new professional up with another employee who is more relatable may benefit the mentee-mentor relationship. The closer or more relatable a mentor and mentee, PS is higher for the mentee.[14] Near-peer mentoring is not designed to limit who the educator or trainer is but to help to create an inviting environment for the new learner.

How will the MLS leader, professional, educator, or learner know PS has been created and successful in the environment? Most assessment tools for evaluating PS in an environment are subjective.[15] Subjective assessments include changes in behaviors. Whether explicit or implicit actions, both can be measured before versus after an in-person or virtual education or professional event. Subjective assessments can also be used for laboratory meetings in the professional work unit. An example of explicit behaviors would include more participants speaking up in a group, and examples of implicit behaviors are appropriate non-verbal communications such as eye contact and active listening. For example, before, during, and after a work unit medical laboratory meeting, have an individual assess the implicit and explicit actions observed to compare before and after implementation of PS strategies (Table 2).

Table 2. Explicit and Implicit Strategies Contributing to Psychological Safety

Strategy	Before MLS* Meeting	During MLS* Meeting	After MLS* Meeting
Implicit Actions or Behaviors	Private Environment Arrive Early Circular Seating Co-facilitator Positioning Mindful of timing -	Behavioral Integrity Empathy Pause to Listen Positive Affect Positive Regard Eye Contact	Behavioral Integrity Positive Affect Positive Regard Confidentiality - -
Explicit Actions of Behaviors	Clarify Expectations Confidentiality Transparency Inclusive Language Commit to Respect Attend to Logistics	Authenticity Inclusivity Validation & Paraphrasing Curiosity & Appreciation Normalization Vulnerability	Express Appreciation Invite Feedback Offer Support - - -

*Medical Laboratory Science

Modified from: Kolbe M, Eppich W, Rudolph J, Meguerdichian M, Catena H, Cripps A, et al. Managing psychological safety in debriefings: a dynamic balancing act [Internet]. BMJ simulation & technology enhanced learning. 2020 [cited 2023 Oct 21];6(3):164. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8936758/.

Surveys are another way to assess the level of PS in the environment. After an MLS educational event whether in-person or virtual, such as professional development or training, the educator or facilitator can send out a survey to participants. By making the survey anonymous PS is maintained. Questions on the survey to

assess PS for participants can be taken from the General Health Questionnaire (GHQ-12) which is a tool that has been validated to measure PS.[12] The GHQ-12 survey is typically used for quantitative analysis of mental health and was developed in 1988 by Goldberg and Williams.[12,16] Examples of questions on the GHQ-12 survey are how the participant felt during the event and what, if any, resources were unavailable to help the participant succeed. Using exact questions from the GHQ-12 survey may not be necessary in a medical laboratory assessment of PS. However, the GHQ-12 survey may serve as a model to determine the correct questions to ask and evaluate if PS strategies are successful.

Discussion

The purpose of creating PS in an MLS professional or educational in-person and virtual setting is to improve workplace culture. Studies have shown PS will create a more open environment for interpersonal risk-taking.[1,2,4,6] Additionally, interpersonal risk-taking may lead to increased collaboration among teams, and individuals may have a better sense of professional identity. Furthermore, adding simple PS strategies to virtual MLS education impacts learner agility.

Psychological safety creates a positive workplace culture. The positive culture is attributed to decreases in turnover, absenteeism, and adverse events, all of which correlate to high levels of PS.[4,9] Consequently, increases are seen in retention and engagement of staff working in an environment with PS.[3,4,7,9] MLS professionals that experience staff satisfaction in the workplace environment may be more likely to stay in the profession and participate in internal and external activities such as volunteering for process improvements and for activities in professional organizations. There is also increased stewardship and a general feeling of compassion and kindness.[4] An MLS environment may start to feel like a family where encouragement and compassion are readily given not only for professional conduct, but also for personal events.

The characteristics of an environment with high levels of PS foster teamwork. Psychological safety within a team creates better connections among team members leading to increased learning.[9] Consider an MLS learning event such as a one-hour professional development session on crucial conversations, and the participants and facilitator of the learning event are considered the team. With PS communication is better, and collaboration and innovation thrive.[9,14] The MLS professional development session with PS strategies included may provide more ideas by and for the learners than the facilitator anticipated. With PS at the team level, mistakes are tolerated, and encouragement, compassion, and forgiveness are present among team members.[4] Teams with characteristics of high levels of PS build trust. Team members with that trust lead to better performance.[9] An MLS learning event may be more successful using PS strategies. The educational alliance between educator/learner or trainer/trainee increases.[14]

Individuals in the MLS profession may develop professional identity because of PS. Professional identity is associated with self-confidence and a sense of purpose which increases, and anxiety decreases when PS is present.[2,3,9,11,17] Even with PS present an MLS professional, and learner may feel vulnerable. However, PS allows inter-personal risk-taking despite feeling vulnerable, and individuals can increase connections.[9,10]

These inter-personal connections between MLS professionals, educators, and learners can lead to recognition. A sense of being heard through recognition leads to validation and individuals exhibiting characteristics of high PS.[10] High levels of PS keep people motivated and individuals start to notice the value in other perspectives.[2-4] Based on research of PS, a lifecycle for MLS on creating PS is described in Figure 1. The outcome of implementing PS may not only be in motivation of job performance and learning agility but also motivation to support on-going PS.
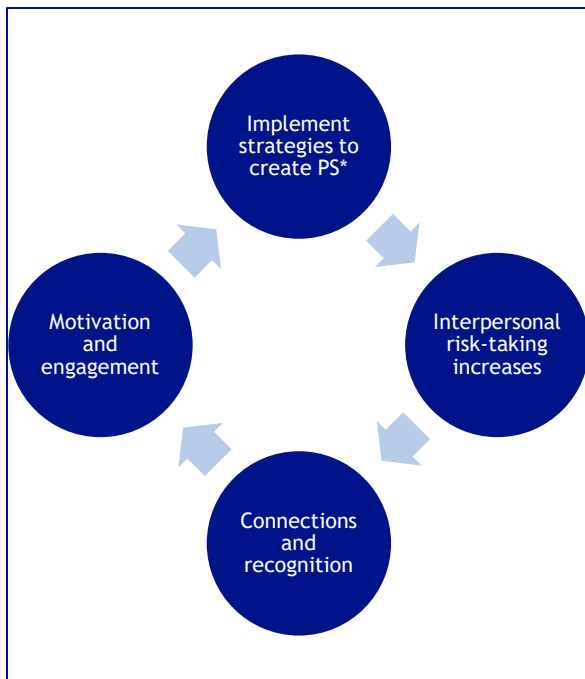
*Psychological Safety (PS)

Figure 1. Psychological Safety Creation Lifecycle in Medical Laboratory Science

Implementation of strategies to create psychological safety in MLS lead to interpersonal risk-taking. Increased interpersonal risk-taking leads to connections and recognition among MLS professionals and learners. MLS professionals and learners become more motivated and engaged, and creating psychological safety in MLS is sustainable.

Similar outcomes are expected where PS has been incorporated for MLS virtual education. Psychological safety increases the usefulness of virtual learning.[18] Without PS in the virtual learning environment, interpersonal risk-taking may be reduced and connections lost. Psychological safety increases the wellbeing of educators and learners creating connections in a virtual education setting.[19] Without connections, motivation, and engagement, the virtual learning environment may lose its usefulness, and the educational alliance may be weakened.

Despite the clear advantages of PS, opposing views suggest PS does not directly correlate to outcomes. PS is viewed only as a mediator for team learning.[17] When PS is viewed as a mediator, other resources are needed in combination to achieve desired outcomes such as a positive workplace culture.

One of the resources suggested is felt accountability.[17] Felt accountability is the "expectation that one's decisions and behaviors will be evaluated by a salient audience and receive reward or sanctions."[20] If this were true for MLS, the idea of felt accountability, or the constant feeling of being evaluated, may not help with PS in a medical laboratory environment. Felt accountability could be a barrier to PS.

Although there are clear advantages to improving PS, the overall concept may fall victim to the Too-Much-of-a-Good-Thing (TMGT) effect. Too much PS could lead to unethical behavior such as choosing what is beneficial over what is right.[5] Too much PS may also decrease individual team members effort and motivation which decreases interpersonal risk-taking.[17] Unethical interpersonal risk-taking can lead to a bad reputation.[5] In MLS, PS is TMGT when the medical laboratory environment has such a high a level of PS that certain employees communicate in an unethical manner. For example, a medical laboratory technologist feels safe enough at work to use intimidating and repressive verbal and non-verbal communication when questioned by a coworker on following a procedure. The coworker attempts to inquire about the expiration date after preparation of a reagent, and the expiration date on the reagent label differs from what is written in the standard operating procedure. The medical laboratory technologist responds with "this is how it has always been" with arms crossed. Situations such as this are where felt accountability may be valuable.

Other limitations to consider regarding a virtual environment either in education or a workplace meeting are the challenges of communication and emotions. Remote interactions may cause adverse effects such as feelings of loneliness, discomfort, and detachment.[18,21] Communication in virtual environments tends to be informal and spontaneous and not all necessary stakeholders are always included.[21] The combination of both isolation and miscommunication makes for a damaging

combination in the virtual environment for MLS education and professionals. Distress is the outcome of such an environment and individuals are not successful.[22] Instead use PS to mitigate distress, especially during times of uncertainty.[17] Creating PS in a virtual environment may ease the challenges of communication and emotions.

Conclusion

Creating PS in a medical laboratory provides more benefits than adverse outcomes. When all roles in a medical laboratory commit to creating PS, the entire team will perform better. A few simple changes to a virtual environment will increase engagement and participation. To study these outcomes more accurately in MLS professionals and learners, PS must first be created. More research is also needed to determine if felt accountability is an asset or a barrier of PS. Suggested next steps are for MLS professionals, educators, and learners to evaluate PS in the environment whether virtual or in-person. Then implement strategies to create PS. Once strategies have been implemented, take a pulse on the environment and be open to feedback on the strategies.

A misconception is PS makes learning more engaging by being enjoyable.[23] PS is not about creating a comfort or complaining zone.[17] MLS professionals, educators, and learners can work through the discomfort in open and encouraging communication. Medical laboratory professionals can create positive work and learning environments using simple PS strategies.

References

1. Edmondson AC. The fearless organization: Creating psychological safety in the workplace for learning, innovation, and growth. John Wiley & Sons; 2018 Nov 20.

2. Torralba KD, Jose D, Byrne J. Psychological safety, the hidden curriculum, and ambiguity in medicine [Internet]. Clinical rheumatology. 2020 Mar [cited 2023 Jan 17];39(3):667-71. Available from: https://link.springer.com/article/10.1007/s10067-019-04889-4.

3. Daniels AL, Morse C, Breman R. Psychological safety in simulation-based prelicensure nursing education: a narrative review [Internet]. Nurse Educ. 2021 [cited 2023 Aug 25];46(5):E99-E102. doi:10.1097/NNE.0000000000001057. Available from: https://journals.lww.com/nurseeducatoronline/Fulltext/2021/09000/Psychological_Safety_in_Simulation_Based.32.aspx?casa_token=ICCVifxlXH4AAAAA:apDRsoRMsLCjY9yQSTMxHRAlYeGCSXfiP9vn7M1M-xwASiqygju3S_WayG5Bxhiqlgx3mY2cItmyPP4Xl9K34RE0Ng.

4. Ma Y, Faraz NA, Ahmed F, et al. Curbing nurses' burnout during COVID-19: The roles of servant leadership and psychological safety [Internet]. J Nurs Manag. 2021 [cited 2023 Aug 25];29:2383-2391. Available from: https://doi.org/10.1111/jonm.13414.

5. Newman A, Donohue R, Eva N. Psychological safety: A systematic review of the literature [Internet]. Human resource management review. 2017 Sep 1 [cited 2022 Oct 8];27(3):521-35. Available from: https://www.sciencedirect.com/science/article/pii/S1053482217300013.

6. Johnson CE, Keating JL, Molloy EK. Psychological safety in feedback: What does it look like and how can educators work with learners to foster it? [Internet]. Med Educ. 2020 [cited 2023 Sept 3];54:559-570. Available from: https://doi.org/10.1111/medu.14154.

7. Chou E, Grawey T, Paige JB. Psychological Safety as an Educational Value in Interprofessional Health Education [Internet]. AMA J Ethics. 2023 May 1 [cited 2023 Aug 26];25(5):E338-343. doi: 10.1001/amajethics.2023.338. PMID: 37132619. Available from: https://journalofethics.ama-assn.org/article/psychological-safety-educational-value-interprofessional-health-education/2023-05.

8. Inoue A, Eguchi H, Kachi Y, Tsutsumi A. Perceived psychosocial safety climate,

psychological distress, and work engagement in Japanese employees: A cross-sectional mediation analysis of job demands and job resources [Internet]. J Occup Health. 2023 [cited 2023 Aug 26];65:e12405. doi:10.1002/1348-9585.12405. Available from: https://onlinelibrary.wiley.com/doi/full/10.1002/1348-9585.12405.

9.   Pfeifer LE, Vessey JA. Psychological safety on the healthcare team [Internet]. Nursing Management. 2019 Aug 1 [cited 2022 Oct 22];50(8):32-8. Available from: https://journals.lww.com/nursingmanagement/FullText/2019/08000/Psychological_safety_on_the_healthcare_team.7.aspx?casa_token=xJrreDIB6RkAAAAA:PwRTWs2bNBW9tqp0hX8wDbXF192nLpsERlSSKlffSZrPm7bE39LOY9nf1VN3ucqT6I_JUrK8Thx37bT8JAc45zYeIA.

10.   Howard K. How to Heal a Workplace: Tackle Trauma, Foster Psychological Safety and Boost Happiness at Work. 1st ed. Australia: John Wiley & Sons; 2023 Feb 17.

11.   Turner S, Harder N, Martin D, Gillman L. Psychological safety in simulation: Perspectives of nursing students and faculty [Internet]. Nurse Educ Today. 2023 Mar [cited 2023 Sep 4];122:105712. doi: 10.1016/j.nedt.2023.105712. Epub 2023 Jan 13. PMID: 36669303. Available from: https://www.sciencedirect.com/science/article/pii/S0260691723000060.

12.   Obrenovic B, Jianguo D, Khudaykulov A, Khan MA. Work-family conflict impact on psychological safety and psychological well-being: A job performance model [Internet]. Frontiers in psychology. 2020 Mar 31 [cited 2023 Aug 25];11:475. Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2020.00475/full.

13.   Goldsworthy S, Verkuyl M. Facilitated virtual synchronous debriefing: A practical approach. Clinical Simulation in Nursing [Internet]. 2021 Oct 1 [cited 2023 Aug 26];59:81-4. Available from: https://doi.org/10.1016/j.ecns.2021.06.002.

14.   Dokal K, Rampes S, Mukhammadaminov A, Divecha YA, Yousefi S. Reducing the perceived power gap: A practical way to achieve psychological safety in undergraduate education [Internet]. Med. Educ. 2020 Oct 1 [cited 2023 Sept 3];54:963. Available from: https://www.researchgate.net /profile/Sanketh-Rampes-2/publication/341250081_Reducing_the_perceived_power_gap_A_practical_way_to_achieve_psychological_safety_in_undergraduate_education/links/5ed9fc10299bf1c67d41b074/Reducing-the-perceived-power-gap-A-practical-way-to-achieve-psychological-safety-in-undergraduate-education.pdf.

15.   O'Donovan R, McAuliffe E. A systematic review exploring the content and outcomes of interventions to improve psychological safety, speaking up and voice behaviour [Internet]. BMC health services research. 2020 Dec [cited 2023 Oct 21];20(1):1-1. Available from: https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-020-4931-2.

16.   Griffith GJ, Jones K. Understanding the population structure of the GHQ-12: Methodological considerations in dimensionally complex measurement outcomes [Internet]. Social Science & Medicine. 2019 Dec 1 [cited 2023 Oct 21];243:112638. Available from: https://www.sciencedirect.com/science/article/pii/S0277953619306331?casa_token=ImmuTz86OFIAAAAA:lp4VwfImH65uW0-ba9RWmaRCWQXb78TSNAMb3sBFtpSdmpwJlpZGYYD7-uwuO4VxSvMfNaJDENv6.

17.   Higgins MC, Dobrow SR, Weiner JM, Liu H. When is psychological safety helpful in organizations? A longitudinal study [Internet]. Academy of Management Discoveries. 2022 Mar [cited 2023 Sept 1];8(1):77-102. Available from: https://journals.aom.org/doi/abs/10.5465/amd.2018.0242

18.   Korneeva E, Strielkowski W, Krayneva R, Sherstobitova A. Social Health and Psychological Safety of Students Involved in Online Education during the COVID-19 Pandemic [Internet]. International Journal of Environmental Research and Public Health. 2022 Oct 26 [cited 2023 Aug 26];19(21):13928.

Available from: https://doi.org/10.3390/ijerph192113928.

19.   Sjöblom K, Juutinen S, Mäkikangas A. The importance of self-leadership strategies and psychological safety for well-being in the context of enforced remote work [Internet]. Challenges. 2022 Apr 4 [cited 2023 Sept 3];13(1):14. Available from: https://www.mdpi.com/2078-1547/13/1/14.

20.   Schillemans T, Overman S, Fawcett P, Flinders M, Fredriksson M, Laegreid P, et al. Understanding Felt Accountability: The institutional antecedents of the felt accountability of agency-CEO's to central government [Internet]. Governance. 2021 Jul [cited 2023 Oct 21] ;34(3):893-916. Available from: https://onlinelibrary.wiley.com/doi/full/ 10.1111/gove.12547.

21.   Lechner A, Tobias Mortlock JM. How to create psychological safety in virtual teams [Internet]. Organizational dynamics. 2022 Apr 1 [cited 2023 Aug 31];51(2). Available from: https://openaccess.city.ac.uk/id/eprint/25878/1/.

22.   Henricksen JW, Altenburg C, Reeder RW. Operationalizing healthcare simulation psychological safety: a descriptive analysis of an intervention [Internet]. Simulation in healthcare. 2017 Oct 1 [cited 2023 Oct 21] ;12(5):289-97. Available from: https://journals.lww.com/simulationinhealthcare/FullText/2017/10000/Operationalizing_Healthcare_Simulation.3.aspx?casa_token=JnVfqdXUN48AAAAA:pgSTqnztkBtzm-eMTHddTQnBeoyspOQsDi4VeWb3KYLqlpLzXuHGCwq_5NVpWrQlVUmESxEcX5sJ_UnrpCY7HxESCg.

23.   Pottle J. Virtual reality and the transformation of medical education [Internet]. Future healthcare journal. 2019 Oct [cited 2023 Oct 21];6(3):181. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6798020/.

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