

Strengthening Simulation Design and Cultural Safe Practice: End-User Evaluation of the Quality Simulation Assurance Framework

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Abstract

Background:

Simulation-based learning is a core component of health professional education, yet designing simulations that are culturally responsive, educationally robust, and locally relevant remains challenging. Existing international standards reflect the cultural contexts in which they were developed and provide limited guidance for adapting simulation design for Australia and Aotearoa New Zealand, including effective inclusion of First Nations perspectives. The Quality Simulation Assurance Framework was developed to address this gap and support culturally safe, high-quality simulation design. This study explored two research questions: 1) How do participants evaluate the applicability of the framework, including its relevance and feasibility, to their simulation practice? and 2) How does the framework support users in their design and delivery of quality simulation, including perceived helpfulness, value, and educative impact?

Methods:

A pilot evaluation was conducted across five tertiary institutions. Twenty-six educators used the framework to benchmark an existing simulation-based learning activity, and four participated in semi-structured interviews. Quantitative data were analysed using descriptive statistics. Qualitative data were examined using reflexive thematic analysis to explore perceptions of applicability and educative value.

Results:

Participants reported that the framework and supporting materials were broadly applicable to their simulation practice. Most participants rated their experience positively and indicated an intention to use the framework in future design or documentation. Four themes described the framework's perceived value: usability, promoting best practice, supporting reflection on design, and encouraging consistent learner experience. Although the consultation and co-design element of the framework received the lowest quantitative relevance rating, findings showed this element to be least understood, particularly in relation to cultural safety and First Nations inclusion. Participants suggested improvements such as a brief orientation, video walkthroughs, and an online version with embedded guidance. Limitations included a small sample, incomplete survey responses, and challenges recruiting interview participants.

Conclusions:

The Quality Simulation Assurance Framework appears feasible, useful, and educative, supporting more consistent and culturally responsive simulation design. Further refinement should focus on strengthening guidance for co-design with First Peoples and enhancing usability.

Introduction

Simulation-based learning (SBL) is a cornerstone of contemporary healthcare education, offering authentic, experiential opportunities to develop both technical, social and cognitive competencies. Despite its widespread adoption, designing simulation activities that are high-quality, culturally responsive, and pedagogically sound remains a challenge, particularly for novice educators. While the Healthcare Simulation Standards of Best Practice (HSSOBP: 1) and Association for Simulated Practice in Healthcare standards (ASPiH: 2) provide a robust evidence-based guidelines, their development is through a North American, or European (3) sociocultural lens. These standards have not been evaluated for sociocultural appropriateness in regions with different cultural, regulatory, health or education systems, limiting their applicability to the particular social, cultural, political, and economic contexts of Australia and New Zealand, especially in relation to First Nations perspectives.

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The findings of Pogson, Henderson (4) strongly advocate for a structured, context-appropriate framework such as QSAFe. Their scoping review identified significant gaps in current approaches to evaluating the quality of simulation-based education, noting that existing practices often rely heavily on participant feedback rather than robust frameworks capable of assessing the quality of simulation design and implementation. They highlighted three core issues: a reliance on design frameworks without adequate validation, a lack of evaluation frameworks, and the need for benchmarking practices aligned with national or international standards. Importantly, these authors concluded that the sector requires an agreed-upon template framework to support consistent evaluation and improvement of simulation.

To address this gap, the Quality Simulation Assurance Framework (QSAFe) was developed to support simulation design that is contextually relevant and inclusive of Indigenous worldviews. This paper presents findings from a pilot evaluation of QSAFe, focusing on end-user feedback regarding its utility and relevance. Specifically, the study explores two research questions:

1. How do participants evaluate the applicability (relevance, feasibility) of the new audit tool, QSAFe, to their simulation practice?
2. How does QSAFe support (helpfulness, value, educative impact) participants in the design and delivery of quality simulation?

Background

Simulation design is a critical element of effective SBL. The Simulation Design standard of the HSSOBP encourages deliberate planning across the pre-, intra-, and post-simulation phases (5), with evidence suggesting that purposeful design enhances learner engagement, supports achievement of learning objectives, and fosters psychologically safe learning environments (6–8)

Developed using a modified Nominal Group Technique (NGT: 9, 10) in 2023, QSAFe promotes best practice in simulation design tailored to the Australian and New Zealand contexts. Given the variability in higher education curricula across health disciplines, the initial focus was on undergraduate nursing programs. The modified NGT process was chosen for its ability to integrate diverse elements such as simulation standards, evolving terminology, curriculum design, accreditation requirements, and First Nations perspectives. The NGT process facilitated consensus among simulation experts, resulting in a simplified and contextually grounded framework that supports novice educators in applying simulation standards effectively (11).

The draft framework was systematically mapped to key professional documents from both countries, including those addressing First Nations cultural considerations, undergraduate nursing program accreditation standards, national safety and quality standards, and Indigenous health curricula frameworks. To ensure broader relevance and methodological rigour, QSAFe mapped to both HSSOBP and ASPIH simulation standards.

QSAFe Tool and Supportive Resources

QSAFe was designed to both guide simulation design and benchmark existing activities to it. QSAFe comprises five key elements:

1. Simulation modalities and methodologies
2. Consultation and co-design
3. Curriculum alignment
4. Faculty preparation for delivery
5. Learner preparation for delivery

See Appendix A for an excerpt from QSAFe Element 2.

Recognising the need to support novice simulationists, an Education Handbook was designed to introduce foundational simulation concepts referenced in QSAFe. The Handbook was co-developed with

Australian Aboriginal and Māori cultural advisors to ensure cultural appropriateness and relevance across both Australian and Aotearoa New Zealand contexts, providing guidance on language, diversity, equity, and inclusion, ensuring the resource reflects Indigenous values and priorities.

The final section of the Handbook includes a matrix aligning QSAFe elements with Australian and Aotearoa New Zealand nursing standards of practice, and health industry quality and safety frameworks. Cultural experts also contributed to mapping QSAFe against key cultural frameworks, including the *Aboriginal and Torres Strait Islander Health Curriculum Framework* (12).

To answer the research questions in this study, we asked participants, primarily educators and simulation practitioners, to use QSAFe to benchmark an existing SBL activity. To support this process, a user guide and the QSAFe Education Handbook were developed.

Study Purpose

The purpose of this study was to explore participant evaluations of the Quality Simulation Assurance Framework (QSAFe); how do participants evaluate the applicability (relevance, feasibility) of the new audit tool, QSAFe, to their simulation practice, and how does QSAFe support (helpfulness, value, educative impact) participants in the design and delivery of quality simulation?

Methods

Setting

Five tertiary institutions offering nursing degree programs were invited to participate: four universities in Australia and one polytechnic in Aotearoa New Zealand. Data collection occurred between April and August 2024. Ethics approval was obtained from all participating institutions, with overarching approval granted by the lead university (ACU2022-2860E).

Participants

This study focused on end-user evaluations of the QSAFe tool, Education Handbook, and user guide post-pilot. Participant feedback was considered essential for critically appraising the content, usability, and purpose of the framework prior to its finalisation and dissemination (13). Institutions were purposively sampled to ensure diversity in simulation experience and educational context.

Measures

Data collection occurred in two distinct phases.

Phase One: Evaluation of QSAFe – Online

Participants were asked to use QSAFe to benchmark an existing SBL activity they had designed or currently deliver. To facilitate anonymous data collection, the QSAFe tool was transposed into the Qualtrics^{XM} platform (14, version 19). Anonymisation was prioritised to ensure participants felt safe sharing their experiences, with emphasis placed on evaluating the tool rather than critiquing their simulation design. This phase of data collection collected data outlined in Fig. 1:

Phase Two: Evaluation of QSAFe - Semi-structured interviews

Phase two of data collection comprised participants from phase one who consented to be interviewed via an online semi-structured interview format, see Table 1. Interviews were held by two of the research team members ensuring interview participants were not interviewed by individuals from their own organisation. Interviews followed an interview guide comprising questions and prompts. Interviews were held within two weeks of the participant completing the QSAFe activity (phase one).

Table 1
Interview questions

Focus area	Examples of interview questions
Retrospective experience of the tool	1. How user-friendly do you find the QSAFe to be? 2. Are there any features or aspects you particularly appreciate or find challenging (from content, structure, length, accessibility, formatting, voice, definitions etc)?
Current state	3. Having now applied the tool to an existing simulation did it help identify your own gaps and strengths in simulation. 4. If so, in what way?
Future state	5. Having now been exposed to the tool, are you likely to modify your simulation design and implementation process? 6. Please provide examples of changes or improvements you've made as a result.

Data Analysis

Demographic and frequency data from phase one were analysed using descriptive statistics (frequencies and percentages) in Microsoft Excel® exported from Qualtrics®. Phase two semi-structured interviews were conducted via Microsoft Teams®, audio recorded and transcribed. The transcription was checked for accuracy against the recording. The Principal Investigator (MB) then anonymised the transcripts prior to analysis by YK. Short answer evaluation responses and interview transcripts were qualitatively analysed using a thematic analysis approach via Braun & Clarke’s six-phase approach (15, 16) comprising familiarisation; initial coding; searching for themes; reviewing; defining/naming; reporting. Data were coded using NVIVO 14 (17) and codes developed into themes

(YK). The research team sense checked and reached consensus on the codes and themes (YK). Coding was then cross-checked and codes and themes validated by SG with supporting exemplar quotes.

Reflexivity: YK, who performed the qualitative analysis is a non-clinician, qualitative research consultant and was independent of the project team. SG is a nurse, academic and simulation specialist. The Australian First Nations consultant is a social worker. The remainder of the research team comprised registered nurses and simulation experts.

Results

Data from phases one and two were combined to respond to the research questions. Accordingly, combined data sets provided a narrative of the participant’s experience, informing recommendations for an end-user informed version of QSAFe.

Over a five-month data collection period, research participants applied QSAFe to existing simulation activities. Twenty-six participants (n = 26) benchmarked activities and provided feedback within Qualtrics and via in-depth interviews (n = 4, av. 39mins). Interviewees were nursing academics from three different organisations across Australia, whose self-reported experience in simulation ranged from novice to expert.

Table 2
Participant demographics

Years of experience in simulation	n	Role*	n
<i>*Some participants held dual roles</i>			
0–2 years (Novice)	7	Lecturer in charge (of a unit/subject)	7
3–5 years (Junior)	3	Deputy lecturer in charge	2
6–10 years (Mid-Career)	5	Head of curriculum	1
11–20 years (Senior)	11	Facilitator/educator (of simulation activities)	12
		Simulation expert	3
		Other	1
Total	26		

Overall, participants rated the contents within each QSAFe element as relevant for supporting SBL design. Figure 2 shows participants in phase one rating of the relevance of each element.

Element 1: Modes and methods, Element 2: Consultation and co-design, Element 3: Curriculum alignment, Element 4: Faculty preparation, Element 5: Learner preparation

Participants’ perceptions of the usability and relevance of the QSAFe tool and its supporting educational resources were positive across both phases of feedback (Phases one and two).

Phase one results:

- **Overall experience:** 83% of participants (n = 18) rated their experience as **5 or above** out of 10, demonstrating ease of use of QSAFe.
- **Handbook usefulness:** 89% agreed the handbook was helpful in completing using QSAFe.
- **Future use:** 78% indicated they would use QSAFe to document and design future simulation activities.

Inductive qualitative analysis of both phases one and two data identified four key themes related to QSAFe’s applicability and ability to support simulation design. Three themes, each with sub-themes emerge; refer to Table 3.

Table 3
Qualitative themes and sub-themes

Theme	Sub-theme
Usability	Easy to navigate
	Guidance for novices
	Fostered understanding
Promoting best practice	Consultation
	Design
	Facilitation
	Professional development
	Evaluation
	Debriefing
Reflecting on design	Enhancing and adapting simulation design Understanding the ‘why’ of design
Consistent student experience	Lack of consistent Quality Assurance practices
	Tool as a vehicle for shared understanding

Theme 1: Usability

Usability captures how easily participants at varying levels of simulation experience were able to understand, navigate, and apply the QSAFe framework. Participant responses indicated the usability of the QSAFe framework positively. Reduced usability reported was largely influenced by participants’ familiarity with simulation pedagogy (experience level). For an experienced nursing academic, the concepts were “pretty well self-explanatory” (IP3), whereas those less familiar found “the words (and) the concepts... difficult to understand” (IP4). Explanatory sections that “explained around different concepts” were “found handy” (IP1), aiding comprehension and navigation. However, both the tool and handbook were described as “quite large” with a preference for “something smaller and simple” (IP4). To improve usability, particularly for novices, participants recommended a structured onboarding, such as a brief orientation or “a video recording... [showing] ‘this is the tool... this is the purpose... how it is constructed... and how you need to use it’” (IP1). Table 4 below includes further exemplar quotes from participants.

Table 4
Theme – Usability, with exemplar quotes.

<div>  <p>Usability</p> </div> <div>Theme</div>	
Subthemes	Exemplar Quotes
Easy to navigate	<ul style="list-style-type: none"> • "Look for me it was very user friendly." (IP3) • "I thought it was pretty well self-explanatory." (IP3) • “Scaffolded beautifully” (IP3).
Recommend guidance for novices	<ul style="list-style-type: none"> • "Being shown how to use it or being told about it would help somebody who's never used it before, rather than just give you the document." (IP1) • "A video recording of a video clip of somebody saying, “OK, this is a tool. This is the purpose of it. This is how it's constructed. And this is how you need to use it.” (IP1)
Fostered understanding	<ul style="list-style-type: none"> • "It had some explaining around different concepts which I found handy." (IP1) • “It provided a standardised list descriptive list of simulation types was a great feature to enable the "what" we do against the commonly understood category types.” (EP10)

EP: Evaluation participant (phase one); IP: Interview participant (phase two)

Theme 2: Promoting Best Practice

The theme Promoting Best Practice reflects how participants perceived QSAFe as a mechanism for strengthening the quality, consistency, and educational rigour of simulation design and delivery. Participants described QSAFe as offering structured guidance that supports clearer, more aligned simulation practice across individuals and teams. Refer to Table 5 for exemplar quotes for each subtheme.

Subtheme: Consultation. Even though Element 2 (Consultation and Co-design) in phase one quantitative results showed that participants found this element the least relevant (see Fig. 2), consultation emerged as a critical factor in the qualitative findings. Participants emphasised the importance of collaboration across disciplines and co-design processes to enhance cultural safety and avoid stereotypical representations in case studies. Feedback loops with staff and design teams were viewed as essential for continuous improvement.

Subtheme: Design reflected participants' recognition that access to structured tools like QSAFe supports more consistent and effective simulation design. QSAFe was seen as bridging gaps in understanding between designers and implementers and reinforcing best practice principles.

Subtheme: Facilitation subtheme underscored the value of anticipating student perspectives and ensuring simulations are simple yet impactful, with checks in place before delivery.

Subtheme: Professional Development. Participants reported that QSAFe facilitated learning of simulation terminology, identification of knowledge gaps, and reflection on compliance with standards. QSAFe also prompted awareness of cultural safety and highlighted inconsistencies in simulation knowledge among staff transitioning from clinical roles to academia.

Subtheme: Evaluation. Participants valued QSAFe for enabling reflection and iterative improvement of simulations, noting its role in identifying missing elements and prompting the development of evaluation plans.

Subtheme: Debriefing. Participants noted that varied approaches among staff contributed to inconsistent student experiences; QSAFe prompted recognition of the need for more standardised, intentional debriefing practices.

Table 5
Theme – Promoting best practice, with exemplar quotes.

<div data-bbox="251 205 402 367"></div> <div data-bbox="235 378 451 445">Promoting best practice</div> <div data-bbox="99 428 198 459">Theme</div>	
Subthemes	Exemplar Quotes
Consultation	<ul style="list-style-type: none"> • “People that specialise in different areas, don't often collaborate well.” (IP4) • “I think that the cultural safety and the safety of the students’ needs to be increased. And I think that the only way to do that is through collaboration” (IP2) • “Feedback from staff and co-design team is important for improvement.” (EP26) • “I do think this is [consultation] something to warrant consideration to avoid stereotypical issues with the case studies and providing care to First Nations people and to encourage cultural safety in this space for our First Nations students.” (EP7)
Design	<ul style="list-style-type: none"> • “This current place that I'm working. If they had more access to tools like this, they would be able to do it much better.” • “Would be nice if everybody used the same tool in their design.” (IP1) • “You've got an idea in your head, and you can put it on paper, but when someone else needs to use that paper, they may not....perhaps the QSAFe tool might have helped with that.” (IP2) • “I learned a lot on best practice.” (EP6)
Facilitation	<ul style="list-style-type: none"> • “It's cemented the idea for me that the simulation can be something really simple, but it can have a huge impact if it's done properly.” (IP2) • “It cemented that for me; I should be in that first class at least to see how things are going.” (IP2) • “I think it's just identifying before it gets to the students. So, as a product, you gotta sort of sit down and think through all the things that if I was a student and I was doing this or this and this and how would that affect me? (IP2)
Professional Development	<ul style="list-style-type: none"> • “This would be a really good tool to help you like even some of the language....Some of the language, you kind of, if you're not using it, you're unfamiliar with it.” (IP3) • “You had a teaching team around you, and you'd use a tool like as a bit of a needs analysis for them to identify gaps in their own knowledge. That would be a great opportunity.” (IP3) • “Many of them have just come from a clinical educator or a clinical role [into academia] and they often got put into the clinical units.... having the tools like this would help them put it all together.” (IP3)



Promoting best
practice

Theme

Subthemes	Exemplar Quotes
	<ul style="list-style-type: none">• “I revisited [after using QSAFe] the definitions of fidelity and I have learnt there are many more actions we need to take to be compliant with the simulation standards.” (EP1)• “I need to understand cultural safety more.” (EP2)• “Yes. It makes me reflect how inconsistent/lacking knowledge and skill is in this simulation space.” (EP26)
Evaluation	<ul style="list-style-type: none">• [Using the tool] can identify what else is missing and how we can now modify it for next semester having something there that you can refer back to so that you can put a different spin on things. I think that was the most valuable thing because there's always something that you can do better (IP2)• “I've considered that we don't have an evaluation plan and probably should have.” (EP19)
Debriefing	<ul style="list-style-type: none">• When we design our labs, every teacher has different experiences, clinical experiences, so some people might focus on different parts...depending on who I talked with, we ended in different ways and students got different things out of it (IP1)

EP: Evaluation participant (phase one); IP: Interview participant (phase two)

Theme 3: Reflecting on Design

This theme captures how QSAFe supported deeper reflection on the purpose, structure, and quality of simulation activities. Refer to Table 6 for exemplar quotes. Within the **subtheme Enhancing and Adapting Simulation Design**, participants described using QSAFe to update or redesign existing simulations, ensuring that activities remained responsive to emerging learner needs and evolving curricular expectations. This process encouraged educators to refine scenarios, simplify complex elements, and ensure alignment with intended learning outcomes.

The **subtheme Understanding the ‘Why’ of Design** reflected participants’ growing appreciation of the rationale behind design decisions. QSAFe prompted educators to think intentionally about each component of a simulation, fostering planning that is grounded in clear pedagogical and cultural principles rather than habit or intuition.

Table 6
Theme – Reflecting on design, with exemplar quotes.

 <p>Reflecting on design</p> <p>Theme</p>	
Subthemes	Exemplar Quotes
Enhancing and adapting simulation design	<ul style="list-style-type: none"> • “I do think that I would use it if I was going to redesign or design new, yeah.” (IP3) • “The tool] highlighted that...you do something like two years ago and you think it's fantastic and then you sort of think to yourself, “Oh yeah, no, it'll be right for next year, and then it comes to the next year, and you think to yourself, Oh no, that don't work anymore because things have changed. The complexity of our student needs is changing. They have additional needs or concerns.” (IP2) • “I have got some ideas about how to make things better next time around.” (EP4)
Understanding the 'why' of design	<ul style="list-style-type: none"> • “Using the tool made me review the unit. It helped me to realise what we actually did, how it was planned, because I wasn't involved in the design and the planning of it. I kind of know how it's constructed a little bit better now and why that that they've added...the scenarios and the steps. All the actions that we expect of the students in the labs.... So, I could see where they came from when they designed it.” (IP1) • “[I learned] more planning for my activity is required.” (EP3)

EP: Evaluation participant (phase one); IP: Interview participant (phase two)

Theme: Consistent Student Experience

This theme reflects participants’ emphasis on the importance of delivering equitable and predictable learning experiences for students across all simulation settings. Participants highlighted in **subtheme Lack of Consistent Quality Assurance (QA) Practices**, noted that QSAFe helped reveal variability in simulation design and delivery, particularly across campuses and among casual or sessional staff. In **subtheme, Tool as a Vehicle for Shared Understanding**, QSAFe was seen as a unifying tool that could provide structured oversight, support shared understanding, and promote consistency, ultimately helping ensure equitable student experiences. Taken together, these findings indicate that QSAFe not only

strengthens individual simulation activities but also cultivates a broader culture of reflective, high-quality practice. By encouraging educators to examine design decisions, adapt activities with purpose, and work towards greater consistency, QSAFe contributes to enhanced capability, coherence, and educational quality in simulation-based learning. See Table 7for exemplar quotes.

Table 7
Theme - Consistent Student Experience, with exemplar quotes.

<div>  <p>Consistent student experience</p> </div> <div>Theme</div>	
Subthemes	Exemplar Quotes
Lack of consistent QA practices	<ul style="list-style-type: none"> • “Next year if I only teach one class, I need to be in that room to make sure that this is OK.” (IP2)
Tool as a vehicle for shared understanding	<ul style="list-style-type: none"> • “I can imagine simulation is not always an easy tool and not everybody get it, and it's just good to get everybody on the same page.” (IP1) • “[If we] leave it very open to interpretation, the students get a different experience. We want consistency across all the different campuses.” (IP3)

EP: Evaluation participant (phase one); IP: Interview participant (phase two)

Discussion

This study examined end-users’ perspectives on the applicability of the QSAFe framework to simulation practice (RQ1) and its supportive/educative impact on the design and delivery of quality simulation (RQ2).

Research question one sought to understand the applicability (relevance and feasibility) of QSAFe. Participants generally judged QSAFe to be highly applicable to routine simulation practice. They emphasised the value of the tool in aiding the standardising of terminology and of simulation design processes across campuses and disciplines, thereby reducing variability in student experiences and improving alignment with curriculum outcomes and accreditation expectations. At the same time, feasibility issues emerged, most notably related to cognitive load and document length. Educators with strong backgrounds in simulation pedagogy tended to find the framework self-explanatory, whereas

novice users reported difficulty with language and concepts, highlighting a need for more accessible presentation and onboarding.

Survey results positioned Consultation and Co-design as the *least relevant* element; however, qualitative data indicated it was also the least understood, particularly in relation to cultural safety and meaningful incorporation of First Nations perspectives. This divergence suggests that lower relevance ratings likely reflect limited confidence and know-how (18) rather than true lack of importance. Literature has shown that non-Indigenous practitioners frequently feel underprepared, unconfident, or insufficiently trained in cultural safety concepts, especially those requiring active partnership with First Nations communities (19, 20).

Participants proposed scaffolded guidance for novice educators would be helpful when first engaging with QSAFe. Several respondents also noted that the Qualtrics format used for the pilot version of QSAFe, and displayed all content at once, likely amplified perceived complexity of the framework. An interactive version of QSAFe was recommended to improve usability and feasibility.

Research question two sought to understand the level of support (helpfulness, value, educative impact) QSAFe provided. Participants described QSAFe as a resource that serves multiple purposes:

1. **Design scaffolding and alignment.** QSAFe provided clear prompts and shared language to plan scenarios, link activities to learning outcomes, and contextualise international standards within local program structures. Notably, participants reported that the framework helped them understand the “why” behind inherited simulation designs, improving continuity and coherence when activities were designed by others. A key learning for participants regarding simulation design was the need for collaboration and consultation to meet alignment to standards, curriculum requirements, enhance the student experience, ensure sufficient resourcing and authentically represent aspects of clinical and cultural care.
2. **Professional development and capacity building.** Educators used QSAFe for self-assessment, peer-based needs analysis, and, in some instances, formal audit. These uses were experienced as non-threatening and supportive, enabling individuals and teaching teams to identify knowledge/practice gaps (including cultural safety) and to plan targeted development. This dual function, design tool and professional development mechanism, supports consistent practice across diverse and casualised teaching teams. As previously highlighted by (20) and Hardy, Filipenko (20), non-Indigenous practitioners need guidance and support to build confidence and competence to meaningfully consult and create active partnerships with First Nations communities.
3. **Shared understanding and preparation for facilitation.** The framework was viewed as a vehicle for consistency in facilitation and debriefing expectations, reducing variation between educators/classes and enhancing reliability of learner experiences across sites. Here is where QSAFe extends existing simulation standards, as recommended by Walshe, Condon (21), by incorporating strategies for culturally safe practices in simulation. This is the key difference

between QSAFe and simulation standards. That is, contextual capacity building of educators to deliver quality, culturally appropriate learning and prevent unintentional harm (22).

4. Quality assurance

Additional recommendations from participants related to enhancing usability. Participants suggested clear usability enhancements to amplify the educative benefits, including brief orientation sessions and short video walk-throughs to demonstrate purpose, structure, and use. A video walkthrough of QSAFe functions as a worked example and expert-led scaffolding of information, reducing extraneous cognitive load (23), lowering any ambiguity or potential frustrations in learning how to use the tool. Guided practice has shown to support learners by minimising ambiguity and frustration (24).

Integrating the findings

QSAFe directly addresses the gaps identified by Pogson, Henderson (4), who reported a lack of validated, structured frameworks for evaluating the quality of simulation-based education and highlighted an over-reliance on satisfaction-based evaluation rather than robust design-focused approaches. As a culturally informed quality-assurance and design tool tailored for Australia and Aotearoa New Zealand, QSAFe responds to this need by offering a consistent, transparent, and contextually grounded mechanism for strengthening simulation design processes. Findings from this study indicate that QSAFe is both relevant and feasible for routine use, with usability further enhanced through improved accessibility features such as web-based delivery, concise definitions, and orientation resources. Participants also described QSAFe as educative, supporting capacity building and reflective practice, particularly in areas where confidence tends to be lower, such as consultation, co-design, and culturally safe practice. By localising international standards and explicitly linking simulation design decisions to learner outcomes and accreditation expectations, QSAFe helps bridge the policy–practice gap and makes high-quality simulation design more actionable across programs and disciplines

This aligns closely with the commentary by Bohnert and Lewis (3) which emphasises the broader international effort to classify competent simulation practice and the persistent challenges in achieving consistent implementation and assessment of standards. Their call for structured, competency-focused guidance reinforces the value of QSAFe as a practical, context-specific framework that operationalises high-level professional standards into clear, actionable processes. In doing so, QSAFe strengthens consistency, quality assurance, and culturally grounded simulation design across diverse educational settings.

Next steps

While First Nations experts contributed valuable guidance to the development of QSAFe, concerns remain regarding whether the perspectives currently represented adequately reflect the diversity of First Nations communities; particularly the many distinct Nations across Australia and the treaty cultural requirements of Aotearoa New Zealand. Voices from multiple Australian Aboriginal nations, Torres Strait

Islander peoples, and Māori communities are missing, and their input is critical for authentic cultural inclusion. This highlights an important area for future research. The next phase of work will focus on strengthening guidance for consultation and co-design in the development of culturally appropriate and culturally safe simulation activities. This research will employ a co-design methodology in partnership with First Peoples across Australia and Aotearoa New Zealand, with the aim of documenting a stepwise co-design process that can serve as an exemplar for others engaging in similar work.

Limitations

This study is limited by its sample size, which reduces the generalisability of findings and the strength of inferences about QSAFe's impact. A further constraint relates to partial completion of the benchmarking task: a subset of participants ($n = 8$) provided feedback only for Element 1. Several factors likely contributed: (i) the anonymised survey platform did not allow pause–resume, discouraging completion; (ii) some users realised mid-process they required additional resources (e.g., course outlines, simulation documentation) and chose to restart or withdraw; and (iii) for participants less familiar with simulation pedagogy, the cognitive load of evaluating complex design elements may have led to non-completion.

Interview recruitment was also challenging, consistent with the high workload and competing priorities of simulation educators/academics. In addition, a small number of potential participants may have perceived the interviews as evaluative of their practice rather than the framework, introducing discomfort or reluctance to engage.

Conclusion

The QSAFe framework offers simulation educators a structured, evidence-informed set of cues and prompts to guide the design, delivery, and evaluation of simulation-based learning. Participant feedback in this study highlighted both the inherent complexity of simulation practice and the value of QSAFe in navigating these challenges. Participants reported that QSAFe helped identify gaps in simulation design, particularly in areas such as First Nations co-design and cultural safety, while also providing a coherent structure that supports reflective practice and promotes consistency across simulation activities.

Importantly, while QSAFe contributes to creating more culturally safe learning environments by prompting educators to consider culturally responsive design elements, the framework does not replace the need for ongoing individual development. Building genuine cultural awareness, capability, and responsiveness remains a critical responsibility of educators themselves. QSAFe can guide and support this work, but culturally safe practice ultimately depends on educators' sustained engagement with cultural learning and partnership with First Peoples.

The integration of end-user feedback in this evaluation will inform ongoing refinement of QSAFe and its accompanying resources, including improved accessibility, onboarding supports, and expanded guidance for consultation and co-design. As simulation-based education continues to evolve across

health disciplines, QSAFe provides a practical and adaptable mechanism to strengthen quality, enhance cultural responsiveness, and translate best practice standards into actionable design processes.

Abbreviations

- ASPiH
Association for Simulated Practice in Healthcare
- EP
Evaluation participant
- HSSOBP
Healthcare Simulation Standards of Best Practice
- IP
Interview participant
- QSAFe
Quality Simulation Assurance Framework

Declarations

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The authors report there are no competing interests to declare.

Author Contribution

MB: conceptualisation, data analysis, project administration, writing -original version and revisionsYK: data analysis, writing methods original version and revisionsCR, TD, RD: data analysis, writing original version and revisionsCK, KRS, AL, AW, NE, LH: data analysis, writing original versionSG: data analysis, critical review and revisions

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Data Availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

References

1. Committee INACSLs, Persico L, Wilson-Keates B, DiGregorio H, Decker S, Xavier N, Preamble. Grounded in Excellence: The Cornerstone Healthcare Simulation Standards of Best Practice. *Clin Simul Nurs*. 2025;105. <https://doi.org/10.1016/j.ecns.2025.101774>.
2. Diaz-Navarro C, Laws-Chapman C, Money Penny M, Purva M. The ASPIH Standards–2023: guiding simulation-based practice in health and care. 2024. <https://doi.org/10.54531/nyvm5886>
3. Bohnert CA, Lewis KL. Certification, accreditation and professional standards: striving to define competency, a response to ASPIH Standards for Simulation-Based Education: Process of Consultation, Design and Implementation. *BMJ Simul Technol Enhanc Learn*. 2018;4(3):105–7. <https://doi.org/10.1136/bmjstel-2018-000308>.
4. Pogson R, Henderson H, Holland M, Sumera A, Sumera K, Webster CA. Determining current approaches to the evaluation of the quality of healthcare simulation-based education provision: a scoping review. *MedEdPublish* (2016). 2023;13:207. <https://doi.org/10.12688/mep.19758.1>
5. Watts PI, McDermott DS, Alinier G, Charnetski M, Ludlow J, Horsley E, et al. Healthcare simulation standards of best practice™ simulation design. *Clin Simul Nurs*. 2021;58:14–21. <https://doi.org/10.1016/j.ecns.2021.08.009>.
6. Daniels AL, Morse C, Breman R. Psychological Safety in Simulation-Based Prelicensure Nursing Education: A Narrative Review. *Nurse Educ*. 2021;46(5). <https://doi.org/10.1097/NNE.0000000000001057>.
7. McDermott DS, Sarasnick J, Timcheck P. Using the INACSL Simulation™ Design Standard for Novice Learners. *Clin Simul Nurs*. 2017;13(6):249–53. <https://doi.org/10.1016/j.ecns.2017.03.003>.
8. Rudolph JW, Raemer DB, Simon R. Establishing a safe container for learning in simulation: the role of the presimulation briefing. *Simul Healthc*. 2014;9(6):339–49. <https://doi.org/10.1097/sih.0000000000000047>.
9. Cooper S, Cant R, Luders E, Waters D, Henderson A, Hood K, et al. The nominal group technique: Generating consensus in nursing research. *J Nurs Educ*. 2020;59(2):65–7. <https://doi.org/10.3928/01484834-20200122-02>.
10. Ryan N, Vieira D, Gyamfi J, Ojo T, Shelley D, Ogedegbe O, et al. Development of the ASSESS tool: a comprehensive tool to support reporting and critical appraisal of qualitative, quantitative, and mixed methods implementation research outcomes. *Implement Sci Commun*. 2022;3(1):34. <https://doi.org/10.1186/s43058-021-00236-4>.
11. Barlow M, Heaton L, Ryan C, Downer T, Reid-Searl K, Guinea S, et al. The Application and Integration of Evidence-Based Best Practice Standards to Healthcare Simulation Design: A Scoping Review. *Clin Simul Nurs*. 2024;87. <https://doi.org/10.1016/j.ecns.2023.101495>.

12. ISBN 978-1. -76007-251-3 Department of Health. Aboriginal and Torres Strait Islander Health Curriculum Framework. Canberra: Department of Health; 2014.
13. Følstad A. Users' design feedback in usability evaluation: a literature review. *Human-centric Comput Inform Sci.* 2017;7(1):19. <https://doi.org/10.1186/s13673-017-0100-y>.
14. Qualtrics. Qualtrics (Version 2019). Provo, UT 2023.
15. Braun V, Clarke V. *Successful qualitative research: A practical guide for beginners*. Los Angeles: Sage; 2013.
16. Braun V, Clarke V. To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Res Sport Exerc Health.* 2021;13(2):201–16.
17. Lumivero. NVivo (Version 14) 2023.
18. Davis G. *Intelligent Living*. 2025. [cited 2026]. Available from: <https://www.intelligentliving.co/cultural-safety-training-guide/>
19. Deravin LM, Bramble M, Anderson J, Mahara N. Strategies that support cultural safety for First Nations people in aged care in Australia: An integrative literature review. *Australas J Ageing.* 2023;42(4):649–59. <https://doi.org/10.1111/ajag.13230>.
20. Hardy B-J, Filipenko S, Smylie D, Ziegler C, Smylie J. Systematic review of Indigenous cultural safety training interventions for healthcare professionals in Australia, Canada, New Zealand and the United States. *BMJ Open.* 2023;13(10):e073320. <https://doi.org/10.1136/bmjopen-2023-073320>.
21. Walshe N, Condon C, Gonzales RA, Burke E, Chianáin LN, Thamanam N, et al. Cultural Simulations, Authenticity, Focus, and Outcomes: A Systematic Review of the Healthcare Literature. *Clin Simul Nurs.* 2022;71:65–81. <https://doi.org/10.1016/j.ecns.2022.05.008>.
22. Vora S, Dahlen B, Bryant K, Kou M. From Simulation to Bedside: The Journey to Provide Equitable Patient Care. *Pediatr Ann.* 2024;53(11):e414–9. <https://doi.org/10.3928/19382359-20240908-03>.
23. van Nooijen CCA, de Koning BB, Bramer WM, Isahakyan A, Asoodar M, Kok E, et al. A Cognitive Load Theory Approach to Understanding Expert Scaffolding of Visual Problem-Solving Tasks: A Scoping Review. *Educational Psychol Rev.* 2024;36(1):12. <https://doi.org/10.1007/s10648-024-09848-3>.
24. Giacomino K, Caliesch R, Sattelmayer KM. The effectiveness of the Peyton's 4-step teaching approach on skill acquisition of procedures in health professions education: A systematic review and meta-analysis with integrated meta-regression. *PeerJ.* 2020;8:e10129. <https://doi.org/10.7717/peerj.10129>.

Figures

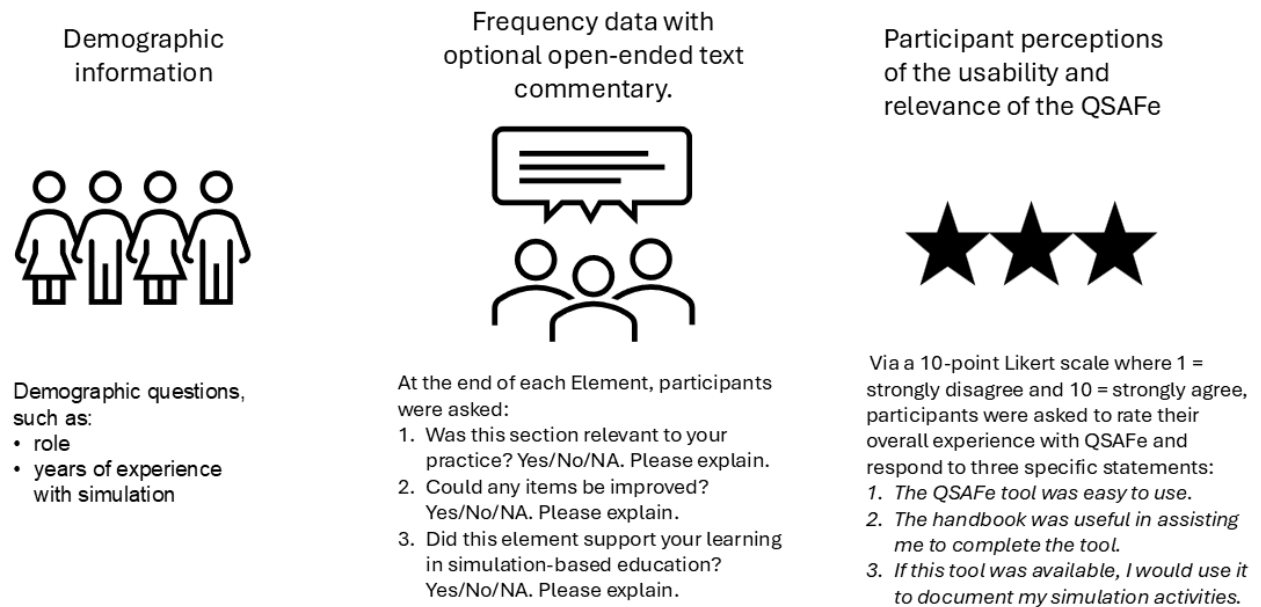


Figure 1

Phase One data collection

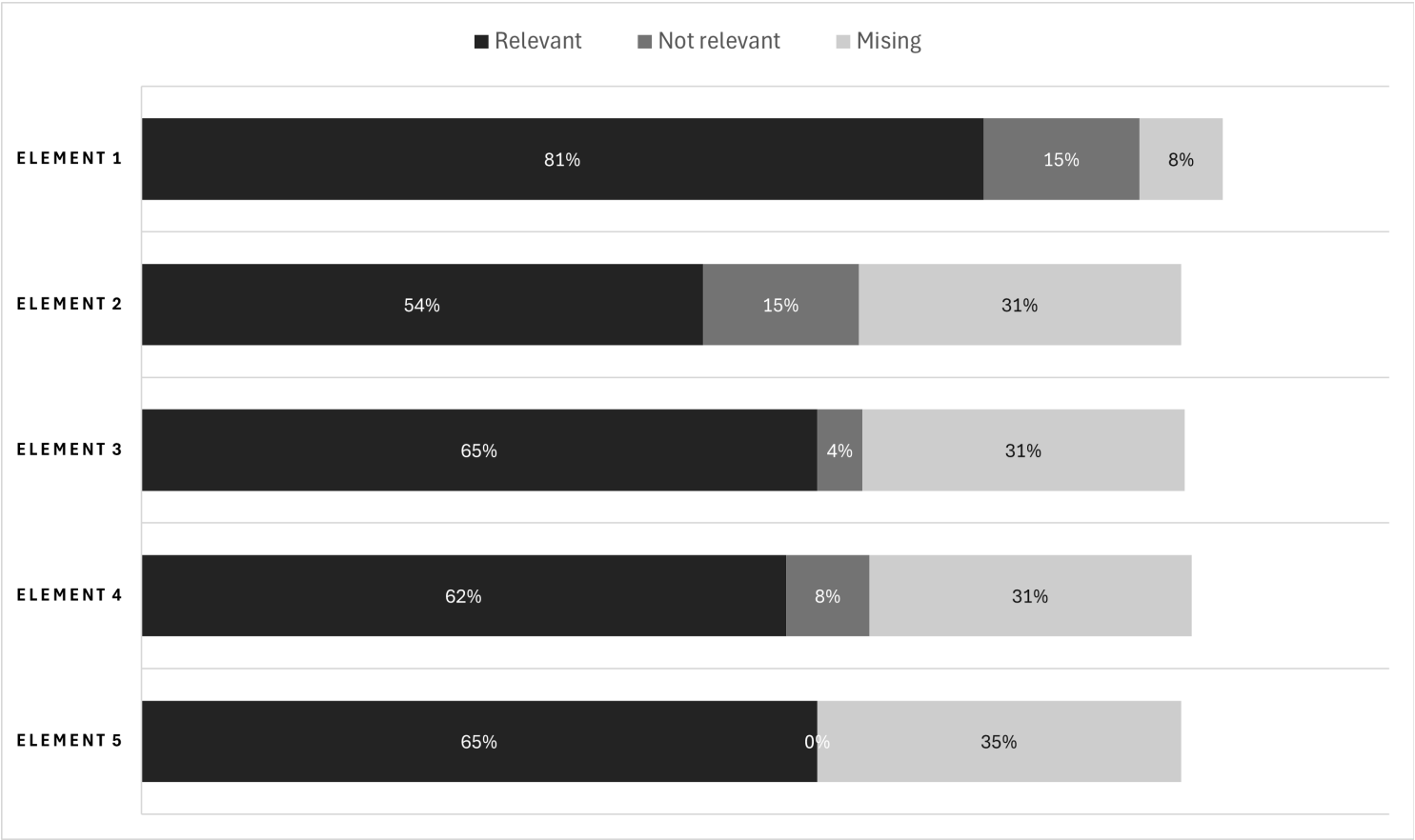


Figure 2

Ranked relevance of QSAFe Elements from evaluation

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- [AppendixA.docx](#)