
| RESEARCH ARTICLE

Optimizing Focus Group Probes in Health Sciences to Unlock Insights into Undergraduate Realities and Coping Dynamics

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| ABSTRACT

The use of qualitative research focus groups in health sciences leverages group synergy to explore complex experiences, yet the strategic execution of probes within these group dynamics remains somewhat under-examined compared to one-on-one interviews. This study review optimizes the use of probes with prompts for clarification on questioning as precision tools to unlock deep insights into undergraduate realities and coping dynamics. Grounded in phenomenological and ethnographic philosophies, the review contrasts the dyadic nature of interview probing with the interactive, debate-driven nature of focus group probing. The emerging conclusions demonstrate that while optimized probes successfully balance structure and flexibility to elicit authentic participant insights, facilitators require steering in the preparation process to maximize effectiveness. Aimed at addressing this, the study offers vivid illustrations for focus group facilitators pertaining to probing techniques, practical simulations, ethical considerations, and cultural adaptations. Ultimately, this review confirms that optimized probing techniques are vital for capturing in focus groups overlooked institutional and personal elements influencing undergraduate experiences, offering a pathway for consideration as exercises for educational researchers in practice.

| KEYWORDS

Health sciences; qualitative research; focus group probes; undergraduate realities; coping dynamics; facilitator training

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Introductory Overview

Focus groups are an important data collection tool in qualitative research for studying intricate social and psychological issues, especially in education and healthcare. Unlike interviews and surveys, focus groups use interactions as a tool for deep exploration of common experiences. Focus groups are enhanced using probes, which are prompted clarification questions posed verbally or through diaries and photo-elicitation. Such probes improve focus groups by encouraging participants to elaborate on their answers, clarify ambiguous statements, and offer emotionally and contextually rich responses. This literature review analyzes the use of probes in focus groups as a method of uncovering vital hidden academic and non-academic factors that influence the success of undergraduates in health programs. Findings support the development of targeted facilitator training and culturally appropriate probe frameworks by integrating strategies from the literature and evidence-based frameworks. The literature that was reviewed spans the past seven years predominantly, but also includes classical publications, conference proceedings, and guidelines that were published in the last two decades that were referenced repeatedly in some of the recent

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publications, and represent the evolving perspectives on the use of probes in qualitative research data collection. The initial scope of this scientific report is literature-focused, while the latter component of the report provides an outline for training and development of facilitators in the use of probes in qualitative focus groups.

Literature Review and Analysis

Probes in Qualitative Research Data Collection

Probes in qualitative research are adaptable techniques that deepen participant responses while balancing structure with conversational flexibility. According to Graham et al. (2007), probes are methodological strategies used to elicit elaboration, clarity, and emotional reactions in qualitative data. In research involving focus groups, probes are used to follow up on predetermined areas of interest, explore unanticipated but relevant topics raised by participants, examine affective experiences, and elicit insights grounded in participants' specific social and cultural contexts (Harrell & Bradley, 2009). However, Naoua (2022) critiques overreliance on pre-scripted questions, stating that they may hinder organic discussion. Recent innovations in material probes, such as diaries and photo elicitation, address the critique by enabling participant-led narratives (Jarke & Maaß, 2018). Despite the increased use of probes in qualitative focus groups, Graham et al. (2007) caution that in cross-cultural settings, probes developed without attention to social and cultural factors may misdirect discussions toward irrelevant topics or biased responses, as variations in vocabulary, practices, and standards of rigor can influence how they are understood and used. For instance, probes can obscure the academic and non-cognitive factors contributing to undergraduate underperformance and repeated licensure exam failure in health science programs. Thus, while probes increase data richness, their design must balance structure and flexibility to prevent bias during data collection.

Anticipated, emergent, emotional, and cultural probes present distinct opportunities and problems that necessitate their careful selection to yield meaningful and contextually relevant qualitative data. Pre-scripted anticipated probes enhance consistency in cross-cultural studies (Krueger et al., 2020). However, Robinson (2023) argues that these probes overlook surprising themes, including unvoiced peer pressure and culturally conditioned coping mechanisms, due to their rigid, formulaic structure. On the other hand, Langford (2025) notes that emergent probes adjust their questioning patterns based on the way participants answer and can identify more nuanced forms of stress, such as imposter syndrome. By comparison, emotional probes, such as mood boards, can validate participants' emotional experiences, but without a cross-cultural focus group analysis, there is a risk of oversimplifying those emotions (Chang, 2006). Furthermore, while Priede et al. (2014) explain the effectiveness of cultural probes like visual elicitation in collectivist cultures, Au (2019) warns against assuming that the data gathered is universally interpretable. Krueger et al. (2020) further advocate for hybrid methodologies, such as experience probes, to integrate structure with creativity. Probe selection corresponds with the research objective to prevent methodological discord and the collection of compromised data.

Probing techniques in focus groups are based on ethnographic and phenomenological traditions that emphasize participant perspectives. According to Scheibelhofer (2023), the probes' theoretical framework is based on Spradley's ethnographic interviews, which emphasize descriptive, structural, and comparison questions. Thus, the probes draw on Spradley's ethnographic approach to systematically elicit rich qualitative data by first capturing detailed descriptions, then uncovering how information is organized, and finally comparing perspectives to reveal underlying patterns. Graham et al. (2007, p. 3) state that probes "make the invisible visible", particularly when researching tacit academic pressures. However, Ruslin et al. (2022) argue that extensive probing can alter natural discourse, and Macnaghten (2021) emphasizes the ethical risks of investigating sensitive themes, such as exam failure, which require cultural and psychological precautions. Thus, while probes are theoretically resilient, their implementation necessitates reflexive changes to consider participant vulnerabilities during data collection.

Probes in Focus Groups vs. Interviews

Focus groups and interviews deploy probes differently due to their distinct interaction dynamics. In focus groups, probes use group synergy to generate debate, with participants building on each other's comments (Ning et al., 2024). For instance, relay questions, such as "Who else has experienced this?" promote peer discourse to reveal common academic pressures. In contrast, interviews rely on dyadic interactions, in which probes go further into individual experiences, such as asking a student to expand on a specific exam failure (Goodwin et al., 2021). The moderators' function also diverges, because in focus groups they facilitate collective discourse, whereas in interviews they direct a linear narrative (Poliandri et al., 2023). Thus, the availability of a well-trained facilitator ensures that focus groups promote participation and prevent powerful voices from overshadowing quiet participants (Dimitrakopoulou & Theodorou, 2022). Including a co-facilitator to monitor non-verbal cues, such as body language

in person or reaction delays online, tends to improve data interpretation (Lochmiller, 2021). Therefore, probe effectiveness in data collection from focus groups is premised on adapting to the method's or moderator's interaction style.

Applications in Health Science Education Focus Groups Research

Probes serve as precision instruments for uncovering non-cognitive barriers that surveys and tests often overlook. For instance, a simple stress-mapping probe such as "Mark the three most overwhelming moments in your academic year and describe what made them difficult" can reveal hidden stresses, such as clinical placement conflicts or sleep deprivation (Evanger et al., 2024; Santamaria et al., 2024). Cultural probes can be effective in different cultural contexts, like Saudi settings in which indirect questioning is consistent with local norms, such as asking health science undergraduates to "share a proverb that describes your exam preparation". Such a question can reveal familial expectations more effectively than direct questions posed in interviews (Hope et al., 2022). The Saudi example is pertinent to the study because the contextual cultural norms often favor indirect, metaphor-based communication, which makes cultural probes an effective way of eliciting candid insights without making participants nervous. Emotional probes, such as "Use these emoji cards to show how feedback from instructors makes you feel", externalize tacit reactions like shame or motivation, whereas artifact-based probes, such as "Sketch your ideal study space", denote environmental barriers like a lack of quiet zones (Chang, 2006; Jarke & Maaß, 2018). These examples show that strategically designed probes bridge the gap between surface-level responses and the deeper academic, emotional, and cultural realities that shape student outcomes in focus group data collection.

Training Framework for Focus Group Facilitators on Effective Probe Use

Focus 1: Understanding Probes

Objective: Equip facilitators with foundational knowledge of probe types and their functions in focus groups.

- **Definitions and Examples**

1. Probes are prompts that can be verbal or material, meant to elicit elaboration, emotion, or context during data collection (Priede et al., 2014). They include the following:
 - Anticipated probes, such as "Describe step-by-step how you prepared for your last anatomy practical exam." The implied structured probe targets known academic behaviors and allows for comparison across participants in focus group research.
 - Emergent probes, such as after a student mentions 'blanking out' during exams, the facilitator proceeding to ask: "You describe 'blanking out', where in your body did you first notice that feeling? Such a probe follows the natural discussion flow to uncover physiological manifestations of test anxiety, which is a key non-cognitive factor in licensure failure in health science tests.
 - Emotional probes, such as "Using these feeling cards, show which emotion best captures your reaction when receiving exam results. Now pick one for how you think your clinical instructor perceived your performance." This visual metaphor circumvents cultural reluctance to verbalize failure while revealing potential shame dynamics affecting health science undergraduates' resilience.
 - Cultural probes, such as "Draw two versions of your study space: one during regular terms, one right before licensure exams. What objects or people appear/disappear?" Edwards and l'Anson (2020) aver that an artifact-based approach exposes changes in family involvement, such as parents bringing food during crunch time and environmental stressors, while respecting collectivist norms about direct criticism.

- **Theoretical Roots:** Discuss Spradley's ethnographic questioning as elaborated by Scheibelhofer (2023) and Krueger et al's (2020) "experience probes" for emotional depth.
- **Activity:** Trainees match probe types to research goals, such as using cultural probes to explore familial pressures in Saudi contexts. In addition, include a co-facilitator to document non-verbal cues, such as hesitations and eye contact, which Jain (2021) argues can signal unspoken stressors.

Focus 2: Probe Techniques

Objective: Teach facilitators to select and deploy probes adaptively.

- **Anticipated vs. Emergent Probes**

1. Anticipated: Pre-scripted for consistency ("Describe a time feedback helped you improve").
2. Emergent: Improvised to follow threads ("You mentioned 'burnout', what does that look like for you?").

Example: In a licensure exam failure discussion, an emergent probe like "How did your peers react to failing?" can reveal collective coping strategies.

- **Emotional Probes**

1. Use visual tools, such as emotion cards, to bypass verbal reluctance: "Point to the face that matches your post-exam mood."
2. Avoid leading: Replace "Don't you think exams are unfair?" with "How do exam policies affect your preparation?"

- **Activity:** Role-play adapting probes for gender-segregated groups. The core skill required is balancing probes to ensure all voices are heard (such as "We have heard from seniors, let us hear from first-years."

Focus 3: Practical Simulations

Objective: Hone probe use through hands-on practice.

- **Mock Focus Groups**

1. Scenario 1: Undergraduates discuss licensure exam stress. Trainees practice: Relay probes: "Who else relates to Ahmed's experience?" Timeline probes: "Mark your top three stressful weeks last semester."
2. Scenario 2: Faculty explore teaching barriers. Trainees practice: Artifact probes: "Share an anonymized feedback snippet you would revise."

- **Peer Feedback:** Rubric evaluates probe clarity (non-leading), cultural sensitivity (avoiding direct blame), and inclusivity (managing dominant participants).
- **Common pitfalls:** Probe use pitfalls include overusing anticipated probes, stifling organic discussion, and misinterpreting non-verbal cues (such as silence as disengagement vs. reflection) (Dhar et al., 2023).
- **Activity:** The co-facilitator records observational notes on body language, such as crossed arms, during stress discussions to guide debriefs.

Focus 4: Ethical and Cultural Adaptation

Objective: Ensure probes respect participant vulnerabilities and local norms.

- **Cultural-specific adjustments:**

1. Gender segregation: Use breakout groups for sensitive topics (Findley et al., 2024).
2. Face-saving: Frame failure probes positively ("Describe a challenge you overcame").

- **Ethical safeguards:**

1. Anonymize material probes (diaries).
2. Train moderators to recognize distress signals.

- **Activity:** Case analysis of a probe that failed (direct questioning causing withdrawal).

Focus 5: Discussion on Expected Outcomes and Evaluation

Objective: This training will equip facilitators to:

- Identify barriers like exam clustering (academic) and test anxiety (non-cognitive) through thematic analysis of probe responses.
- Apply best practices, including hybrid probing (anticipated and emergent) and co-facilitation for non-verbal cues, evaluated via participant feedback and session debriefs.
- Implement a replicable framework adaptable for faculty/student groups, assessed through pilot testing and longitudinal tracking.

Impact: Transform focus groups into diagnostic tools to drive curriculum reforms (spaced assessments, licensure alignment), enhance student support (stress interventions), and improve faculty training, with success measured through policy adoption within 12-18 months, 20% stress reduction, and 15% higher licensure pass rates to create a sustainable model for data-driven educational improvement in health programs.

Conclusion

Probes are an effective methodological tool for focus group research because they elicit deep, more real insights into academic and non-cognitive aspects influencing student achievement in health programs. Thus, when intelligently constructed and culturally tailored, they uncover hidden stressors, contextual factors, and emotional dynamics that surveys frequently overlook. Effective use of probes necessitates balancing structure and flexibility, matching the types to study objectives, and being sensitive to cultural norms, such as those observed in Saudi settings. Facilitators trained in adaptive probing techniques, ethical safeguards, and cultural awareness can turn focus groups into diagnostic tools that inform targeted interventions, curriculum reform, and support strategies to improve licensure outcomes and student well-being in health-related education.

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