



Exploring equity and inclusion in team-based learning: A critical pedagogy perspective

Shafeena Anas, Joanne Selway & Pauldy Otermans

To cite this article: Shafeena Anas, Joanne Selway & Pauldy Otermans (01 Apr 2026): Exploring equity and inclusion in team-based learning: A critical pedagogy perspective, Medical Teacher, DOI: [10.1080/0142159X.2026.2649941](https://doi.org/10.1080/0142159X.2026.2649941)

To link to this article: <https://doi.org/10.1080/0142159X.2026.2649941>



© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



[View supplementary material](#)



Published online: 01 Apr 2026.



[Submit your article to this journal](#)



Article views: 225




[View related articles](#)



[View Crossmark data](#)

Exploring equity and inclusion in team-based learning: A critical pedagogy perspective

Shafeena Anas^a, Joanne Selway^b  and Pauldy Otermans^c

^aBrunel Medical School, College of Health, Medicine and Life Sciences, Brunel University of London, Uxbridge, UK; ^bFaculty of Medicine and Allied Health, The University of Buckingham, Buckingham, UK; ^cDepartment of Psychology, College of Health Medicine and Life Sciences, Brunel University of London, Uxbridge, UK

ABSTRACT

Background: Team-Based Learning (TBL) is widely used in medical education to promote active engagement, yet its structured format raises questions about how power, voice, and cultural inclusion are negotiated. Using a critical pedagogy lens can illuminate how students experience these dynamics.

Methods: This mixed-methods study explored Year 2 international medical students' experiences of inclusion, participation, and cultural responsiveness within a TBL-based curriculum. Forty-two students completed a 13-item survey, analysed descriptively, and 11 students participated in focus groups, analysed thematically.

Results: Students valued TBL for fostering collaboration, critical thinking, and respectful peer dialogue. They also acknowledged the exposure to diverse perspectives in the TBL classroom and valued the agency to challenge and critique content peers and their educators. Educators were not consistently perceived as embedding culturally diverse examples and some students experienced participation barriers linked to language and accent.

Conclusion: The TBL classroom embodied many aspects of critical pedagogy in practice; structures which promoted learner engagement through a dialogic process and reimagining the role of the educator as a facilitator for critical learning. However, while TBL offers a supportive structure for peer learning, inclusive and culturally responsive outcomes are not guaranteed. These depend on educator facilitation and intentional design that centres equity and critical dialogue. In order to achieve the emancipatory education envisioned by Freire, educators and institutions must commit to critical reflection, create safe dialogic spaces that value all learners' voices, and intentionally disrupt power imbalances embedded in learning environments.

ARTICLE HISTORY

Received 1 September 2025
Accepted 17 March 2026

KEYWORDS



Team-based learning; critical pedagogy; inclusion; medical education; cultural awareness; student experience

Introduction


In recent years, Team-Based Learning (TBL) has become a widely adopted strategy in medical education, praised for enhancing student engagement, teamwork, and application of knowledge [1–3]. In TBL's structured sequence from pre-class preparation, Individual (IRAT) and Team Readiness Assurance Tests (TRAT), to application exercises students engage actively in problem-solving and peer-supported learning [4,5]. Meta-analytic evidence shows that TBL significantly improves exam performance, retention, engagement, and satisfaction among medical learners when compared to traditional lecture-based learning [5,6]. Despite TBL's widespread implementation across medical schools (e.g. > 80% usage among U.S. institutions) and accumulating evidence of cognitive benefits [2], less attention has been paid to how TBL shapes

Practice points

- Importance of intentional facilitation in learning environments.
- Provide culturally safe learning environments for students to contribute and challenge educators.
- Educators must proactively embed culturally relevant examples in teaching content.
- Learning and pronouncing student names can be symbolic in terms of respect and inclusion.
- Focused faculty development on inclusive facilitation strategies including how to manage group dynamics

CONTACT Shafeena Anas  shafeena.anas@brunel.ac.uk  Medical School, Brunel University London College of Health Medicine and Life Sciences, Uxbridge, UK.

All authors contributed evenly.

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/0142159X.2026.2649941>.

© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

students' experiences around identity, power, and inclusion [7].

Given the increasing diversity of medical students, driven by widening participation initiatives and broader demographic changes, medical classrooms have become more diverse in terms of cultural backgrounds, gender identities, neurodiversity, and socio-economic status [8]. Despite the increased diversity, minoritisation occurs in medicine [9,10] with less privileged groups experiencing disadvantages in educational experience and outcomes [11] and students continue to experience differential outcomes [12,13] and experience microaggression [14] and other forms of marginalisations [15,16]. There is a growing body of evidence that the social and educational environments of health professions programmes can be challenging for students from marginalised backgrounds [17].

As such, medical schools need to address these disparities and create inclusive student environments. TBL has become a widely adopted instructional approach in medical education, valued for promoting collaboration, engagement, and application of knowledge [1–3]. In TBL, diverse teams work collaboratively, requiring consensus and justification. These features are often described as fostering shared learning and flattening traditional hierarchies between teachers and students. Yet, while TBL has been examined extensively for its cognitive and performance benefits, much less is known about how its structured, team-based format shapes experiences of equity, inclusion, and power [7].

TBL combines both democratic and hierarchical elements. On one hand, small-group interaction and peer dialogue can amplify diverse voices; on the other, fixed teams, pre-determined problems, and correctness-based assessments may constrain participation or reinforce dominant norms. These tensions make TBL a particularly revealing context for exploring inclusion in medical education which is a field where widening participation and global student mobility are rapidly increasing classroom diversity [8].

Alongside this, critical pedagogy urges educators to interrogate how classroom structures reproduce or resist systemic marginalisation and power imbalances [18,19]. Introduced by Freire and developed by scholars such as bell hooks and Henry Giroux, critical pedagogy provides a lens to interrogate whether classroom practices reproduce or resist inequity. It emphasises dialogue, co-creation of knowledge, and critical consciousness thereby moving beyond 'respectful discussion' to shared inquiry that challenges power relations [19,20].

In medical education, critical pedagogy has been proposed as a transformative tool to engage learners in health equity, social justice, and

context-sensitive care [18,21]. It is said that medical education implicitly teaches hierarchy and oppression because its pedagogical approaches are rooted in such principles [22, 23]. DasGupta et al. [24] argue that medical education predominantly reflects what Freire called the 'banking model of education', which reinforces hierarchy and oppression. Critical pedagogy has been recommended for its emancipatory approach to education to equip medical students with the tools to identify systems of oppressions in their lives and the greater society [19].

While the introduction of active learning pedagogies such as Problem-based learning (PBL) and TBL in medical education has facilitated the move away from the traditional banking model, limited studies empirically explore pedagogical approaches in medical education from a critical pedagogy perspective [18,21]. Critical pedagogy offers a lens to examine whether TBL environments genuinely promote democratic dialogue, challenge authoritative norms, and foster inclusion [1,7,25,26]. Viewing classroom experiences of TBL through a critical pedagogy lens encourages us to ask: Do students feel safe or comfortable to bring and challenge their diverse perspectives? Are educators facilitating truly inclusive dialogue, or inadvertently reinforcing hierarchies? Do TBL teams promote equitable participation across identity groups, or cluster privileged students at the expense of minoritised voices?

Despite these pressing questions, no systematic critical pedagogy review of TBL, indeed no other study of critical pedagogy in TBL exists in the medical education literature. Prior reviews and meta-analyses have focused overwhelmingly on academic performance, retention, and satisfaction. To fill this gap, the current study centres Year 2 medical students' lived classroom experiences in a predominantly TBL-based curriculum, especially from those with minoritised identities. It also examines how principles of cultural responsiveness, critical thinking, and power-sharing are enacted on the ground. In more detail, this study addresses the underexplored intersection of TBL and critical pedagogy by drawing on both quantitative (survey) and qualitative (focus group) data. In doing so, it foregrounds student voices to illuminate how TBL can either disrupt or perpetuate systemic exclusion in medical learning environments.

Following Larry Michaeson's TBL guidelines [27], the TBL implementation at our institution included pre-class preparation, individual and team readiness assurance tests (IRAT/TRAT), and application exercises facilitated by trained educators.

Using a mixed-methods design, we examined how international students perceived voice, agency, and cultural relevance in TBL sessions. Drawing on both survey and focus-group data, we asked:

1. How do students experience inclusion, voice, and respect for diversity within the TBL classroom? How do educator facilitation and TBL structures influence perceptions of equity and participation?
2. Through this inquiry, we aim to contribute to ongoing conversations about how active learning can move beyond engagement towards truly inclusive and critically reflective pedagogy in medical education.

Method

This study employed a convergent mixed-methods design [28] to explore medical students' experiences of inclusion, power, and cultural responsiveness within a Team-Based Learning (TBL) programme. Quantitative survey and qualitative focus group data were collected concurrently and analysed separately, with integration during interpretation to identify convergences and divergences across data sources.

The study took place at a UK medical school where approximately 60% of Years 1–2 teaching is delivered through TBL. Implementation followed the guidelines proposed by Michaelsen et al. [27], including pre-class preparation, individual readiness assurance tests (IRAT), team readiness assurance tests (TRAT), and application exercises facilitated by trained educators. Class sizes range from 100 to 150 students, divided into teams of 5–6 members assigned for the academic year to ensure diversity in gender, cultural background, and prior academic experience. The cohort involved in this study were all international students in the UK.

Participants-survey

A total of 42 Year 2 medical students, out of a 100 completed the survey. Participants represented a wide range of racial, gender, and educational backgrounds, and most had lived in the UK for fewer than five years. The majority identified as belonging to groups that are systematically marginalised in medicine. Full demographic details, including age distribution, racial/ethnic identity, gender, disability status, and entry qualifications, are provided in Supplementary Appendix A. Data collection took place between 14th February 2023 to 1st March 2023.

Participants – focus groups

A total of 11 Year 2 students took part in the focus groups. Three focus groups were online held *via* MS Teams. Focus group 1 had 4 participants, focus group 2 had 3 participants and focus group 3 had 4 participants. Participants self-identified their gender and there were 6 male, 4 female, and 1 non-binary student.

Materials - survey

Participants were asked to complete an online survey *via* JISC (www.jisc.org). The survey consisted of two sections. In the first section, participants were asked to provide consent and answer some demographic questions (e.g. age, sex, ethnicity, previous education, etc.). In the second section, participants were asked to answer 13 Likert-type statements ranging from (1) Strongly Disagree to (4) Strongly Agree on their experience with TBL. The survey was inspired by previous research [29] and tailored to fit the specification of our programme and TBL. We piloted the survey prior to administration with a group of medical educators and students. The process of its development and the results of the pilot study, however, were not discussed in the article.

The item asking participants if they 'consider themselves to be a member of a group that is considered systematically marginalised' was preceded by an explanation that 'systematic marginalisation refers to groups historically or structurally disadvantaged due to race, ethnicity, religion, gender identity, disability, or socio-economic status'. This wording aimed to reduce cultural ambiguity for the international cohort.

Materials – focus groups

Focus groups were conducted to gain an in-depth understanding of students' experiences of inclusion, participation, and power dynamics within the TBL curriculum during the first two years of the MBBS programme. Three online focus groups were held *via* Microsoft Teams, each lasting 75–90 min. All sessions were audio-recorded and transcribed verbatim. The semi-structured guide explored how students negotiated roles within teams, contributed to discussions, challenged perspectives, and perceived educators' responsiveness (e.g. 'How do you negotiate work within your TBL teams?'; 'How do educators respond when students challenge perspectives?').

Data analysis strategy

The survey data were analysed using IBM SPSS Statistics (Version 29). The qualitative data were examined using a theory-driven Freirean analytical framework, drawing on core concepts of critical pedagogy

such as dialogue, power, voice, and conscientisation. Analysis proceeded deductively: two researchers independently reviewed an initial transcript to develop a shared coding framework grounded in Freirean principles, which was then applied systematically across all transcripts. The team met regularly to compare interpretations, discuss divergences, and refine the analytical focus, with all disagreements resolved through discussion. Throughout the process, reflexive writing was used to document analytic decisions and consider the influence of researcher positionality. Only findings generated through this Freirean lens are reported in the Results.

Ethics and procedure

The study received ethical approval by the institutions' Research Ethics Committee (REF:44425-A-Jun/2024-51143-1). After clicking on the JISC link, the participant information sheet was shown and participants provided consent before completing the actual survey questions. When signing up for the focus groups, participants were presented with a participant information sheet and an informed consent form, after which they gave their consent and joined the in-person focus group. For the focus group, participants were informed that they could withdraw their participation at any point, should they wish, and that no penalty would be applied. For the survey, participants were informed that they cannot withdraw once the survey response was submitted, as the responses were anonymous. For the survey, participants were informed that their data would remain confidential and for the focus group their data would remain anonymous but not confidential. At the end of the study, participants were thanked for their participation and received a debrief form.

Results

Quantitative overview

Descriptive statistics for the 13 survey items are provided in Supplementary Appendix B. Overall, the results indicated generally positive perceptions of inclusion and participation within TBL, with stronger endorsement of items related to collaboration and respectful interaction, and weaker endorsement of items related to cultural relevance and educators' cultural awareness. These quantitative patterns provided a contextual backdrop for interpreting the qualitative findings.

Qualitative themes

The critical-pedagogy-informed analysis generated three interconnected themes that illuminate how

students navigated inclusion, participation, and cultural responsiveness within the TBL environment. Together, these themes show that students valued the collaborative and dialogic intentions of TBL, yet their experiences were shaped by uneven structures of voice, power, and cultural recognition. Supplementary Appendix C.

Identity culture and inclusion

The data indicated that the students feel effectively guided to recognise and navigate cultural differences, with the survey showing positive agreement. Focus groups reinforced this, with students describing initial challenges with communicating with peers from diverse backgrounds. They also reported growing confidence and ability to negotiate meaning and adapt to the diversity in the classroom.

This reflects the beginning of dialogic learning in critical pedagogy, where Freire describes students learning with and from each other across cultural lines. Freire argues that learning should be grounded in the lived experience of and affirm their cultural identities.

Students strongly agreed that educators consistently make an effort to pronounce their names accurately. Alongside this, there was acknowledgement of interpersonal respect and appreciation of symbolic inclusion [20] highlight the importance of affirming identity in classrooms where students feel visible and valued although this does not necessarily translate to deeper inclusion in the curricular.

This is demonstrated by students reporting lower agreement with the statement regarding culturally relevant examples in teaching. This suggests that despite interpersonal inclusion, the curriculum and teaching materials were perceived as less inclusive from the students' perspective. Focus group participants described moments where they had to explain cultural terms or advocate for inclusive resources such as dermatological images. From a critical pedagogy perspective, these findings highlight a structural issue, that the curriculum privileges dominant cultural knowledge. Both Freire and (27) argue that emancipatory education requires teaching content that reflects and validate students' socio-cultural realities and lived experiences. This suggest that TBL structures alone did not guarantee equity, educators must intentionally redesign learning materials to challenge epistemic dominance rather than reproduce it.

The focus group data also suggests that while students value opportunities to share their cultural perspectives, they perceive educators as reactive rather than proactive with student accounts revealing that conversations about inclusion were initiated by them or they filled cultural knowledge gaps.

However, survey responses indicated strong agreement that educators encouraged respectful engagement. Focus group reflection revealed that facilitators played an important role in maintaining a safe learning environment.

The above findings suggests that while TBL fosters an environment of interpersonal respect and provides a space for diverse voices, it does not realise the full potential of the critical pedagogy approach. While critical pedagogy requires educators to actively challenge dominant cultural norms and centre students' identities and experiences within both content and the classroom. The data reveals that students are willing to engage across cultural lines, value and contribute to diverse perspectives. Educators however, while promoting respectful interactions and behaviours were less proactive about redesigning learning materials or proactively engaging in cultural diversity. From a critical pedagogy perspective, educators need to move beyond symbolic gestures and respectful facilitation towards intentional, equity-centred pedagogical designs that challenges power and validates all ways of knowing.

Voice, agency, and participation

A central principle of Freirean pedagogy is cultivating learners' agency and legitimising their voices as co-creators of knowledge [19,31]. Survey findings indicate that students generally feel comfortable responding to educator questions. This reflects an attempt to move away from the banking model of education to dialogic engagement [19]. However, the focus group data revealed linguistic insecurities, such as accent and language proficiency and these were reported as barriers to participation for some students. There were also instances where students felt pressured into speaking roles highlighting how voice is not equally accessible to all learners. Critical pedagogy explains that voice is shaped by power and positionality; therefore, participating structures that do not account for linguistic and cultural hierarchies risk reproducing silencing even in inclusive learning environments.

Students reported strong agreement that they challenge educators and teaching materials, indicating a perception of shared authority in the classroom. Focus groups narratives described respectful dialogue where students questioned content framing and engaged in collective critique with peers and educators. These findings align somewhat to [32] view that the purpose of critical pedagogy is to ensure that voice and power in the classroom can actively construct environment that foster critical analysis and social change amongst educators and students.

Most students reported that educators were generally receptive to respectful challenge. They reflected

that the ability to challenge both their peers and educators created new opportunities for learning. These reflections echo [19] argument for a dialogue-based approach where students engage in questioning and exchanging ideas, to learn and to inquire. However, the data revealed that not all educators demonstrated an openness to being questioned.

Survey responses suggest that students feel encouraged to bring their perspectives and lived experiences into TBL activities. Focus group data reinforced this, with participants identifying cohort diversity as a key learning asset in TBL contexts. From a critical pedagogy standpoint, this reflects an understanding of knowledge, as socially constructed and rooted in lived experiences. By positioning students as contributors rather than passive recipients, TBL creates opportunities for co-construction of knowledge across cultural contexts. However, the extent to which these contributions lead to transformative learning depends on intentionality by the facilitators and extent to which they legitimise diverse experiences in the classroom.

While TBL structures appear to promote participation and peer dialogue, critical pedagogy acknowledges that participation does not equate to empowerment. Focus group data suggests that when participation is perceived as compulsory or unevenly supported, it can undermine agency rather than enhance it. This highlights a tension between structures designed to promote voice must be critically facilitated to ensure that participation is emancipatory rather than performative. Educators play a critical role in ensuring equitable access to voice and participation.

The findings above demonstrate that overall, students found TBL a supportive environment to challenge content and educators and learn from diverse perspectives. However, the data also revealed that voice is not uniformly accessible; rather, it was contingent on relational dynamics, educator dispositions, and students' perceptions of safety. From a Freirean perspective, the findings point to the partial realisation of dialogical, egalitarian classroom relationships. Students experience meaningful opportunities for agency, but structural and linguistic factors continue to mediate whose voices are most readily heard.

Dialogical learning, problem-posing and critical thinking

Survey data indicates that students perceive learning as a collaborative partnership with peers and educators, strongly reinforced by focus group narratives. Students described TBL as enabling a dialogical learning relationship with questioning, explanation and shared meaning-making. This tripartite way of learning-student-self, student-peer and student-educator, reflects Freire's vision of non-hierarchical teacher-

student interactions. Critical pedagogy conceptualises learning as dialogic, an interactive, co-constructed process that fosters critical consciousness. Students described TBL as supporting precisely this type of relational learning. They emphasised the value of engaging in collaborative problem solving, questioning peers, and negotiating interpretations. Many depicted learning as a three-way dialogue among themselves, their peers, and facilitators, forming the type of horizontal partnership Freire advocates [19,33].

Students also recognised TBL as prompting deeper reflection beyond surface-level recall. Problem-solving emerged as one of the strongest dimensions of the learning experience, with students recognising it as central to classroom practice. Focus group data highlighted how TBL application exercises promote collective reasoning, peer support and knowledge exchange.

Students agreed that the learning environment encourages reflection beyond classroom content, with focus group participants attributing this to structured discussion and facilitated questioning in TBL. The opportunity to integrate personal insight and challenge assumptions was viewed as a strength of the approach. Participants also perceived the classroom as fostering higher-order thinking, moving beyond rote learning to application and critique.

The above findings suggest that TBL creates a learning environment that meaningfully embodies some key principles of critical pedagogy: dialogue, shared authority, problem-solving and critical reflection. Students experienced learning as collaborative, challenging and opportunity to learn from diverse perspectives.

However, in critical pedagogy both critical thinking and problem-solving skills are expected to be applied to social conditions, enabling students to critically think about the social contexts that shapes medical encounters. The evidence in the study did not indicate that the TBL classroom realised Freire's vision of problem-posing education. As [18] explains problem-posing in medical education requires political contexts and social determinants to be incorporated as part of the problem-solving exercises in order prevent reinforcement of the biomedical model to problem solving.

This demonstrates that equitable outcomes are not guaranteed by pedagogical structures alone. There needs to be intentional facilitation to support open discussions and validate diverse perspectives, while foregrounding critical examination of power and social conditions.

Discussion

This study offers new insight into how medical students navigate inclusion, power, and cultural

responsiveness within a highly structured TBL curriculum. While students generally experienced TBL as collaborative, engaging, and respectful. findings consistent with prior research on active learning effectiveness [3,6], a critical pedagogy lens how voice, participation, and cultural recognition are enacted. By analysing TBL through Freirean concepts of dialogue, agency, and problem-posing, this study extends existing work by demonstrating that inclusive experiences in TBL are conditional rather than inherent to the method.

Reconsidering TBL through critical pedagogy

Our findings suggest that TBL can support critical pedagogy in practice, but only when educators and institutions intentionally design for it. Critical pedagogy asks educators to question whose knowledge is centred, whose voices are legitimised, and how assessment structures allocate authority. TBL, as a highly structured approach, risks reproducing banking-model dynamics if educators treat cases and answers as fixed. Yet, if facilitators invite students to reinterpret cases through their lived realities or local contexts, TBL can become a space for dialogic knowledge production.

A key contribution of this study is showing that critical pedagogy and structured active learning are not incompatible, but their alignment requires conscious adaptation. For instance, integrating reflection prompts that ask students to question the assumptions embedded in medical scenarios, or designing team discussions that explore how social context shapes diagnosis and care.

What this study adds

The findings highlight three contributions to knowledge. First, the study shows that TBL structures simultaneously promote and limit inclusion: while team-based collaboration encourages respectful exchange, the fixed sequencing, correctness-driven assessment, and educator-controlled case design subtly constrain whose perspectives can shape knowledge production. Second, students' accounts suggest that what is often interpreted as 'dialogue' in TBL (e.g. sharing answers, correcting peers) does not fully meet Freirean criteria for dialogic co-creation. Students engaged intellectually and had opportunities to challenge cultural assumptions but had limited opportunities to redefine problems. Third, the study foregrounds the pivotal role of facilitation. Educators who encouraged dissent, acknowledged uncertainty, and welcomed multiple perspectives created conditions for agency, whereas efficiency-driven or correctness-oriented facilitation

reinforced hierarchies. This provides empirical evidence that the emancipatory potential of TBL depends less on the method itself and more on the reflective stance of educators. Together, these insights demonstrate that structured active learning and critical pedagogy are not incompatible—but alignment requires intentional design, educator reflexivity, and institutional commitment to equity.

Comparison with previous research

These findings resonate with broader literature on equity and belonging in health professions education. Research consistently shows that racially and linguistically diverse students encounter barriers related to accent bias, cultural misrecognition, and uneven opportunities for contribution [13,14]. Similar patterns appear in studies of problem-based and case-based learning, where collaborative formats do not automatically translate into equitable participation. The present study adds nuance by showing that even within a tightly structured pedagogy such as TBL, often presented as a universal leveller, students' experiences remain shaped by linguistic confidence, educator stance, and the cultural positioning of curricular examples.

The findings also contribute to theoretical work on dialogue in medical education. Much of the literature treats 'dialogue' as interchangeable with peer discussion or active participation. In contrast, using Freire's framework reveals that respectful talk is insufficient for dialogic pedagogy unless students are invited to interrogate assumptions and co-construct meaning. This distinction is under-developed in the TBL literature and represents a conceptual contribution of the study.

Implications for research and practice

This study generates several directions for future inquiry:

- Facilitation and power: How do different facilitation styles shape the distribution of voice and authority in TBL? Experimental or observational studies could examine relational dynamics in real time.
- Case authorship and cultural epistemology: How do students and educators co-produce cases, and what knowledge systems become legitimised or excluded through these processes?
- Longitudinal development of agency: How does students' critical engagement evolve across the medical programme, and does exposure to structured active learning build or suppress critical consciousness over time?

- Intersectional experiences: Research is needed to examine how race, language, gender, migration histories, and prior educational cultures shape participation within TBL teams.
- These questions move the field beyond 'does TBL work?' to 'for whom, under what conditions, and with what effects on equity?'

For educators and institutions seeking to align TBL with critical pedagogy, findings suggest the need to:

- Embed culturally diverse and contextually authentic materials that reflect multiple global health realities.
- Make the power structures of TBL explicit such as who defines correctness or frames problems and invite students into conversations about authorship.
- Develop facilitation approaches that support dissent, distributed voice, and linguistic equity.
- Integrate structured reflection to link biomedical reasoning with socio-cultural contexts and student experience.

These practices can help shift TBL from a space of conditional inclusion to one of more equitable co-production.

Limitations

Following [34] guidance on purposefully articulated limitations, the constraints of this study clarify where its insights apply and where they do not. First, the study was situated within a single cohort and institution; it illuminates a particular educational culture rather than claiming universal representation. Second, participants self-selected into the survey and focus groups, likely amplifying the voices of students with strong positive or negative experiences. Third, the qualitative analysis reflects student perspectives only; the absence of educator viewpoints limits understanding of how institutional or pedagogical intentions shape classroom dynamics. Fourth, the survey instrument, though conceptually grounded, lacked formal psychometric validation and should be interpreted as exploratory. Finally, as a cross-sectional design, the study captures momentary experiences rather than developmental trajectories. These limitations do not diminish the value of the findings but instead identify clear opportunities for future research, as outlined above.

Conclusion

This study explored how medical students experience inclusion, voice, and cultural responsiveness within a TBL-based curriculum. Using a critical

pedagogy lens revealed that TBL's collaborative structure offers fertile ground for shared learning and dialogue, yet its hierarchical assessment design and educator-led framing constrain full co-creation of knowledge. Students valued opportunities for teamwork, problem-solving, and respectful discussion, but reported variable cultural inclusivity and uneven openness among facilitators.

These findings suggest that TBL's inclusive potential is conditional. The model itself does not guarantee equity; rather, inclusion emerges through intentional educator practice, critical reflection, and institutional support. Applying Freirean ideas to TBL demonstrates that even structured active learning can foster critical consciousness when dialogue is genuine, power is shared, and diverse experiences are legitimised as knowledge sources.

For educators, this means viewing facilitation as a relational and political act which is one that can either reinforce or resist existing hierarchies. For researchers, the study highlights the need for further inquiry into how TBL's design elements (team formation, assessment mechanisms, and case authorship) mediate power and belonging across diverse cohorts.

Ultimately, embedding critical pedagogy within TBL invites a shift from merely active learning to transformative learning where students and educators engage as co-learners in questioning, reframing, and reimagining what equitable medical education can be.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported there is no funding associated with the work featured in this article.

ORCID

Joanne Selway  <http://orcid.org/0000-0003-1396-0142>

References

- Burgess A, Haq I, Bleasel J, et al. Team-based learning (TBL): a community of practice. *BMC Med Educ.* 2019;19(1):369. doi: [10.1186/s12909-019-1795-4](https://doi.org/10.1186/s12909-019-1795-4)
- Burgess A, Bleasel J, Hickson J, et al. Team-based learning replaces problem-based learning at a large medical school. *BMC Med Educ.* 2020;20(1):492. doi: [10.1186/s12909-020-02362-4](https://doi.org/10.1186/s12909-020-02362-4)
- Fatmi M, Hartling L, Hillier T, et al. The effectiveness of team-based learning on learning outcomes in health professions education: BEME Guide No. 30. *Med Teach.* 2013;35(12): E1608–e1624. doi: [10.3109/0142159X.2013.849802](https://doi.org/10.3109/0142159X.2013.849802)
- Bailey J, Read J, Linder B, et al. Interdisciplinary team-based learning: an integrated opportunity recognition and evaluation model for teaching business, engineering and design students. *Entrepreneurship Educ Pedagogy.* 2021;4(2):143–168. doi: [10.1177/2515127420979190](https://doi.org/10.1177/2515127420979190)
- Xie ZB, Cheng XY, Li XY, et al. Team based learning pedagogy enhances the education quality: a systematic review and meta-analysis. *BMC Med Educ.* 2025; 25(1):580. doi: [10.1186/s12909-025-07175-x](https://doi.org/10.1186/s12909-025-07175-x)
- Alizadeh M, Masoomi R, Mafinejad MK, et al. Team-based learning in health professions education: an umbrella review. *BMC Med Educ.* 2024;24(1):1131. doi: [10.1186/s12909-024-06147-x](https://doi.org/10.1186/s12909-024-06147-x)
- Cagliesi G, Ghanei M. Team-based learning in economics: promoting group collaboration, diversity and inclusion. *J Econ Educ.* 2022;53(1):11–30. doi: [10.1080/00220485.2021.2004276](https://doi.org/10.1080/00220485.2021.2004276)
- Rath VL, Mazotti L, Wilkes MS. A framework to understand the needs of the medical students of the future. *Med Teach.* 2020;42(8):922–928. doi: [10.1080/0142159X.2020.1769048](https://doi.org/10.1080/0142159X.2020.1769048)
- Chiavarioli N, Blitz J, Cleland J. When I say ... diversity. *Med Educ.* 2020;54(10):876–877. doi: [10.1111/medu.14299](https://doi.org/10.1111/medu.14299)
- Paton M, Naidu T, Wyatt TR, et al. Dismantling the master's house: new ways of knowing for equity and social justice in health professions education. *Adv Health Sci Educ Theory Pract.* 2020;25(5):1107–1126. doi: [10.1007/s10459-020-10006-x](https://doi.org/10.1007/s10459-020-10006-x)
- Fyfe M, Horsburgh J, Blitz J, et al. The do's, don'ts and don't knows of redressing differential attainment related to race/ethnicity in medical schools. *Perspect Med Educ.* 2022;11(1):1–14. doi: [10.1007/s40037-021-00696-3](https://doi.org/10.1007/s40037-021-00696-3)
- Woolf K, Potts HW, McManus IC. Ethnicity and academic performance in UK trained doctors and medical students: systematic review and meta-analysis. *BMJ.* 2011;342(1):D901. doi: [10.1136/bmj.d901](https://doi.org/10.1136/bmj.d901)
- Woolf K. Differential attainment in medical education and training. *BMJ.* 2020;368: M339. doi: [10.1136/bmj.m339](https://doi.org/10.1136/bmj.m339)
- Morrison N, Zaman T, Webster G, et al. 'Where are you really from?': a qualitative study of racial micro-aggressions and the impact on medical students in the UK. *BMJ Open.* 2023;13(5): E069009. doi: [10.1136/bmjopen-2022-069009](https://doi.org/10.1136/bmjopen-2022-069009)
- Bullock JL, Lockspeiser T, del Pino-Jones A, et al. They don't see a lot of people my color: a mixed methods study of racial/ethnic stereotype threat among medical students on core clerkships. *Acad Med.* 2020;95(11S Association of American Medical Colleges Learn Serve Lead: Proceedings of the 59th Annual Research in Medical Education Presentations):S58–S66. doi: [10.1097/ACM.0000000000003628](https://doi.org/10.1097/ACM.0000000000003628)
- Kmietowicz Z. Are medical schools turning a blind eye to racism?; 2020.
- Neville P. "You really shouldn't be here": using social identity theory to explore under-represented ethnic minority (UREM) students experiences of belonging in a UK dental school. *Discov Psychol.* 2024;4(1):149. doi: [10.1007/s44202-024-00242-2](https://doi.org/10.1007/s44202-024-00242-2)

18. Cavanagh A, Vanstone M, Ritz S. Problems of problem-based learning: towards transformative critical pedagogy in medical education. *Perspect Med Educ.* 2019;8(1):38–42. doi: [10.1007/s40037-018-0489-7](https://doi.org/10.1007/s40037-018-0489-7)
19. Freire P, *Pedagogy of the oppressed*. New York (NY): Continuum; 1993. (Original work published 1970). Freire P. *Pedagogy of the oppressed*. New York (NY): Continuum; 1993
20. hooks B. *Teaching to transgress*. New York (NY): Routledge; 2014.
21. Clinci D. A case for critical pedagogy in medical education. *Anal Univ Ovidius Din Constanța. Seria Filologie.* 2023;34(1):168–182.
22. Dogra N, Bhatti F, Ertubey C, et al. Teaching diversity to medical undergraduates: Curriculum development, delivery and assessment. *AMEE GUIDE No. 103. Med Teach.* 2016;38(4):323–337. doi: [10.3109/0142159X.2015.1105944](https://doi.org/10.3109/0142159X.2015.1105944) 26642916
23. Hernandez R. Medical Students' Implicit Bias and the Communication of Norms in Medical Education. *Teaching and Learning in Medicine.* 2018;30(1):112–117. doi: [10.1080/10401334.2017.1359610](https://doi.org/10.1080/10401334.2017.1359610)
24. DasGupta S, Fornari A, Geer K, et al. Medical education for social justice: paulo Freire revisited. *J Med Humanit.* 2006;27(4):245–251. doi: [10.1007/s10912-006-9021-x](https://doi.org/10.1007/s10912-006-9021-x)
25. Amos PG. Birds of a feather undermine equity: a strategy to align intent and outcome in team-based learning in higher education. *arXiv preprint arXiv:2503.17476*; 2025. doi: [10.48550/arXiv.2503.17476](https://doi.org/10.48550/arXiv.2503.17476)
26. Li Y, Sears NA, Murray IV, et al. Rethinking teaching team-based learning: the challenges and strategies for medical education in a pandemic. *AERA Open.* 2021;7. doi: [10.1177/23328584211067207](https://doi.org/10.1177/23328584211067207)
27. Michaelsen LK, Sweet M, Parmelee DX. *Team-based learning: small group learning's next big step*. San Francisco (CA): Jossey-Bass; 2009.
28. Creswell JW, Plano Clark VL. *Designing and conducting mixed methods research*. Thousand Oaks (CA): Sage; 2018. 3rd ed
29. Thomas DSP, Quinlan KM. Reimagining curricula: effects of cultural (in)sensitivity of curricula on racially minoritised students' engagement. *Stud High Educ.* 2023;48(2):283–298. doi: [10.1080/03075079.2022.2134332](https://doi.org/10.1080/03075079.2022.2134332)
30. Ladson-Billings G. Toward a theory of culturally relevant pedagogy. *Am Educ Res J.* 1995;32(3):465–491. doi: [10.3102/00028312032003465](https://doi.org/10.3102/00028312032003465)
31. Uddin MS. Critical pedagogy and its implication in the classroom. *J Underrepresented Minority Prog.* 2019;3(2):109–119. doi: [10.32674/jump.v3i2.1788](https://doi.org/10.32674/jump.v3i2.1788)
32. Kaya Ç, Kaya S. Prospective teachers' educational beliefs and their views about the principles of critical pedagogy. *J Educ Learn.* 2017;6(4):181–190. doi: [10.5539/jel.v6n4p181](https://doi.org/10.5539/jel.v6n4p181)
33. Shih YH. Some critical thinking on Paulo Freire's critical pedagogy and its educational implications. *Int Educ Stud.* 2018;11(9):64–70. doi: [10.5539/ies.v11n9p64](https://doi.org/10.5539/ies.v11n9p64)
34. Lingard L. The art of limitations. *Perspect Med Educ.* 2015;4(3):136–137. doi: [10.1007/s40037-015-0181-0](https://doi.org/10.1007/s40037-015-0181-0)
35. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77–101. doi: [10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)
36. Haidet P, Levine RE, Parmelee DX, et al. Perspective: guidelines for reporting team-based learning activities in the medical and health sciences education literature. *Acad Med.* 2012;87(3):292–299. doi: [10.1097/ACM.0b013e318244759e](https://doi.org/10.1097/ACM.0b013e318244759e)
37. hooks B. *Teaching critical thinking: practical wisdom*; 2010.