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Original Research

Finding Their Place: How Anesthesiology Interns Develop a Sense of Belongingness in a New Community of Practice

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Introduction

Humans have a basic need to belong to a community[1,2] and Aristotle declared that "Man, by nature, is a social animal."[3] "Belongingness" has been defined in multiple ways, including "an individual sense of 'connection' or 'acceptance' from others, created through an interaction between an individual and their surrounding environment."[4] Belongingness is a prerequisite for higher-order knowledge acquisition, academic self-efficacy, and self-actualization.[4,5] It is a key mediator of achievement,[6,7] motivation,[8] persistence,[9] engagement,[10] and thriving,[11] and is protective against burnout.[12] Anesthesiology interns face unique challenges in developing a sense of belongingness.

Anesthesiology residency is an example of a training program that uses a "one-plus" curricular model, or a format in which trainees complete a clinical year before the onset of dedicated anesthesiology training. Dermatology, ophthalmology, radiology, neurology, urology, and physical medicine and rehabilitation are examples of other specialties that use this model. For "categorical" residency programs within this model, the first year of the program is facilitated by the parent residency program, often in partnership with local departments. For "advanced" residency programs, trainees undertake a preliminary year in a single clinical specialty (ie, internal medicine or general surgery) or a transitional year that incorporates exposure to a variety of clinical departments.[13] At our institution, and many categorical anesthesiology residencies, interns are decentralized and rotate through external departments including internal medicine, general surgery and surgical subspecialities, emergency medicine, intensive care, and primary care. During the timeframe of our study, interns at our institution were randomly assigned to rotations by medicine and surgery chief residents. Developing a sense of belongingness within the anesthesiology community, despite interacting with this community from a distance, shapes anesthesia interns' educational journey, yet a paucity of literature explores this process.

Within belongingness literature, the concepts of "communities of practice," "legitimate peripheral participation," and "situated learning" are foundational.[14-16] A community of practice (CoP) is an environment to which a group of people belong, are mutually engaged, and share a common goal.[14] A CoP creates and codifies knowledge, shares it among their community, and applies it.[15] People gain belongingness in a CoP and develop a professional identity through legitimate peripheral participation, a process in which newcomers gain access to experts within the community and learn how to become mature practitioners.[16] Newcomers learn to imitate exemplars, become insiders, grow into full participation, and eventually leave the community.[14] The learning that occurs in this model is called *situated learning* because the content is acquired in the *context* of a specific CoP.[16]

Situated learning draws on elements of several learning theories and belongingness is a key mediator. The *cognitivist learning model* describes how learners use working memory to process and map information to their long-term memory.[15] The *behaviorist model* positions teaching and learning as a process of shaping and reinforcing desired observable behaviors.[15] *Social learning* extends cognitivist and behaviorist models by suggesting that learners can observe, but perhaps not experience themselves, behaviors and consequences in their environments and use the information to shape their own behaviors.[15] Participants in a CoP engage in social learning following a pathway including identification (gaining an identity within the community), meaning (creating common understanding through shared experiences), involvement (engaging in the practices of the community), and belongingness (becoming attached to the community).[17,18]

Anesthesiology interns have limited exposure to their new CoP and therefore face challenges in situated learning as they develop a sense of belongingness. We asked the question: By what pathway and mechanisms do anesthesiology interns develop a sense of belongingness in the anesthesiology community of practice?

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Materials and Methods

Ethics Approval

The Yale Institutional Review Board determined this research was exempt from review. Participants provided verbal informed consent; written informed consent was waived. Participation was voluntary and respondents were allowed to decline to answer questions or end the interview at any time.

Participants and Data Collection

The first author conducted semistructured, approximately 60-minute, video teleconference interviews with a convenience sample of anesthesiology interns and early first-year clinical anesthesia (CA-1) residents. Initially, only interns were recruited for the study because this was the target population described in the research question. After approaching data saturation within this cohort, preliminary coding revealed a gap in the trainee's narratives describing the end of the intern year and the transition to CA-1 year. Enrollment was opened to early CA-1 residents and interviews were again conducted until data saturation was reached within this second cohort. All categorical anesthesiology interns and CA-1 residents in our program were ultimately eligible and invited to participate by email. No participants withdrew enrollment. The interviewer was the medical education chief resident. He had an existing relationship with the respondents and had prior experience with qualitative methodology. Semistructured interviewing involves using a prepared question list (Supplemental Online Material, Appendix 1) to guide researchers and respondents to "cocreate meaning" as they explore sensitizing topics.[19] No repeat interviews were conducted. Brief field notes were collected. All prospective participants who volunteered were interviewed sequentially until data saturation was observed. The naming convention consists of a sequentially assigned number and "i/c," distinguishing interns from CA-1 residents (eg, 12i for subject 12, an intern). Audio from interviews was transcribed using artificial intelligence embedded in the video conference software, although not verified by interviewees.

Qualitative Analysis and Theoretical Framework

We used an inductive, hypothesis-generating, qualitative approach rooted in the constant comparative methodology of grounded theory[20,21] to generate a middle-range (data-specific) theory on the development of belongingness among anesthesia interns. The 4 authors independently coded each transcript and used Microsoft Excel to organize the codes. Authors met after 10 and 20 interviews, and upon closing enrollment to refine the codes, appraise intercoder reliability and assess for data and thematic saturation.[22] The authors agreed on a codebook, consolidating individual codes into generalized themes. A constructivist approach was used, acknowledging and encouraging reflexivity (ie, the researchers' subjective interpretations of the data),[23] to develop an overarching explanatory framework from within and between the descriptive themes. There were unique vantagepoints offered by each author based on their role within medical education: a vice chair of medical education, an assistant professor with a master of health science-medical education, a graduate medical education manager with a master of public health, and a chief resident for medical education with a bachelor of arts in sociology. Preliminary findings were presented to an audience of interns and residents in a Grand Rounds setting, and feedback was incorporated, consistent with participatory research methods,[24] before finalizing the manuscript. Faculty were also present at the Grand Rounds and their perspectives were valuable in defining the next steps for the project and action steps for the residency. We adhered to the consolidated criteria for reporting qualitative research (COREQ) guidelines.[25]

Results

Anesthesiology trainees (n = 23) at a large academic center were recruited during the 2023-2024 academic year, 16 (70%) of whom were interns and 7 (30%) were CA-1 residents. This sample represented 76% of the intern class (composed of 21 trainees) and 30% of the CA-1 class (composed of 23 trainees). The following demographics were self-reported: 11 (48%) women and 12 (52%) men; 8 (35%) Black trainees and 10 (43%) White trainees. There was 1 trainee from each of 5 additional racial classifications, which, along with self-reported ethnicity, are not singled out for privacy.

We developed an explanatory framework describing the process by which anesthesiology trainees develop a sense of belongingness in the anesthesiology CoP during their intern year, illustrated as the Belongingness Journey (Figure 1) with further supporting evidence summarized in Table 1. Interns described entering a liminal space. The destabilization within this space was magnified by *performing normalcy* and *managing otherness*. To combat the destabilization, respondents widened their social networks. Respondents also linked their perceived sense of belongingness with the extent to which they drew purpose from their work. Last, respondents described a breakthrough feeling of self-actualization and belongingness when they crossed the threshold from intern to CA-1 year despite entering a new liminal space.

Stepping Into Liminality

Liminality refers to an environment that is in-between or bordering multiple positions.[26] The anesthesiology intern year is a liminal space between medical school and CA training that destabilized interns' sense of belongingness. One intern stated, "I'm in surgery, but I'm not a surgery resident, or medicine, but I'm not a medicine person…it's always standing in that middle spot" (4i). Another repeated the sentiment, stating, "It's temporary that I'm in surgery and medicine…I don't identify with being a medicine or surgery resident" (12i). Descriptions of this space included, "a weird transition period" (8i), "in-between" (4i) and "transient" (17c). The liminal space of intern year was not only a geographic liminality, but also a liminality of identity, in which interns were asked to hold multiple identities simultaneously.

Performing Normalcy

Performing a role (eg, surgery intern) that conflicts with anesthesiology interns' true identities risked harm to their sense of belongingness. An intern recounted taking on the role of a surgery resident, stating, "Every time we did our timeout and I was

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like, '[name], intern.' I wouldn't say that I was a surgery intern…but I couldn't say that I was an anesthesia intern because it confused everybody…" (4i, anonymized). A CA-1 recounting intern year further explained that even in taking on roles within different departments (eg, internal medicine or surgery), "I didn't really feel that sense of belongingness or connection with them because I was not formally a part of their residency" (17c).

Interns also described an identity struggle that occurred as they both accepted and resisted the identity of a doctor while performing in this role using terms such as "fake it 'til you make it"[27] or "imposter syndrome."[28] An intern recounted, "I'm calling myself a doctor, but I barely believe it…I honestly felt like I was more of an actor than anything" (2i). Another stated, "I struggle with 'Dr. [last name]'… I think in part it is the imposter syndrome. I know sometimes it feels like I don't deserve the credit of doctor" (10i, anonymized).

Managing Otherness

Interns frequently managed feelings of otherness, or a lack of belonging because of their identity. One intern described introducing herself as an anesthesia trainee to a nonanesthesia team, stating,

"I feel that I have to introduce myself, but then also with that introduction being aware that I am distancing myself… How can I transparently externalize these conflicting pressures that I'm feeling without othering myself in these groups…Part of being in-between is trying to communicate and have that transparency, but not distancing myself too much from the team that I'm trying to work with" (4i).

Multiple participants from underrepresented groups in medicine also described the effect of gender, racial, ethnic, and age bias in othering them. One intern recounted,

"People were confused as to who I was on the team. They're like, are you a nurse? Are you respiratory therapy? What are, who are you? …As a doctor there's more perception that goes into the title. Some patients might think you're too young" (7i).

Feelings of otherness, both as anesthesia trainees on nonanesthesia teams and as interns from underrepresented groups in medicine, destabilized interns' search for belongingness.

Cohesion With(out) Contact

Interns turned to group cohesion to strengthen their sense of belongingness. An intern pointed to "foundational" events including, "…orientation. You know, I mean, it was about a week and a half that we spent together in orientation" (14i). The intern continued to describe the cohesion within the class stating, "When we have department events, we usually like seek out a table…like we have the intern table" (14i). However, once interns were distributed across different rotations and departments, the cohesion remained despite a lack of direct contact. One intern stated,

"I think with orientation, we were all kind of always together versus now we're all kind of scattered…It [our class] was extremely cohesive at that time and I don't think the cohesion has really changed…I still feel like we're still cohesive in that sense, even though we don't see each other that often" (3i).

Trainees who lived adjacent to the hospital had more frequent organic gatherings, one stating, "We try to like grab meals and coffee and stuff," (14i). Another referred to "Taking time…after work to go hang out with my best friends in residency…" (17c). Those who did not live adjacent to the hospital described less contact, but a continued sense of cohesion because of other foundational touchpoints, with one stating,

"It's pretty cohesive. I don't see many people outside of the hospital because I live off the beaten path and I have the kids. But in our group text you know people are always trying to grab a drink or dinner together…I think we all have a pretty good baseline" (8i).

Interns had limited cohesion with CA residents. For example, one intern stated that he felt the CA-1 class was "…a little bit more separated" and that he was "unaware of the CA-3s," stating, "I've never had an opportunity to chat with them" (4i). Yet interns recognized that the CA residents themselves were a cohesive group, stating "I feel like you guys all seem very close" (7i). Another suggested, "I feel welcomed in general, but of course I still feel a bit like an M4 [fourth year medical student] [when interacting with CA residents]" (8i).

Although many interns cited the importance of mentors, most had not formed a mentoring relationship with local faculty despite desiring these relationships. One intern stated plainly, "I don't have mentors here. I would like to have a mentor" (11i). Only one respondent actively sought out a mentor during the intern year, fast-tracking deeper involvement in the department; the trainee stated, "I think a big part of it was actually reaching out and finding mentorship…I was honestly taking that onus on myself in October…and then I had somebody who I was constantly communicating with" (17c).

Purpose-driven Belongingness

Interns described how their perceived belongingness was linked to the purpose they drew from their work. One recounted, "It's easy obviously to feel lost in the weeds, especially when you're drudging through stuff that is not necessarily stuff that you want to do in the future" (19c). Participants described 2 strategies—*reframing* and *deliberate engagement*—that strengthened their alignment with purpose. Interns reframed seemingly misaligned rotations to identify the elements that *did* support their perceived purpose. One intern suggested, "…there's an anesthesia lens that you can put on when you're in every rotation… I think it could serve as like a tether almost to the [anesthesia] department" (19c). A second strategy that emerged among a minority of respondents was *deliberate engagement*, or intentionally taking a deeper dive and sharing difficult lived experiences regardless of the rotation's surface-level translatability to anesthesiology. One intern described a surgery rotation, stating, "I was in the trenches with them. So you do feel belonging or a sense of like a community with the people [on your team]" (4i).

Perceived Self-actualization

Last, respondents described perceived self-actualization as they crossed the threshold into CA-1 year. One trainee described, "It's the feeling of warm sunshine on a cold winter morning...I have this glow on my face…It felt like I had arrived" (17c).

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Although trainees were stepping into a new but perhaps equally liminal space, they viewed it with less insecurity. Stabilizing mechanisms were attributed to magnified cohesion and alignment with purpose. One stated, "It was new and different because not only was I learning a new thing, but I was working alongside the people who I cared about their opinion of me…This is who I am going to be…" (18c). Another stated,

"So even though it was going to be hard, there was going to be a big learning curve, and I would have to wake up early, I felt like, well, I asked to do this. Before that, before the transition, I was like, I didn't even sign up for this… I felt relieved because I was like, finally I'll be able to do something that I wanted to do" (20c).

Discussion

The pathway by which anesthesia interns develop a sense of belongingness has distinct components, many of which intersect with how this process occurs in other communities of practice. Identifying and leveraging what is known will likely make the application of our findings to professional development curricula in anesthesiology more effective.

The concept of stepping into liminality, as interns also described of their experience stepping into training from medical school, was first examined by social anthropologist Victor Turner in the context of coming-of-age rites of passage.[29] Since then, the concept has been applied to the patient experience[30] and within higher education.[31] Learners who step into a liminal space for educational gain, for example as a medical student, also balance the ambiguity and loss of predictability that comes with leaving behind a previous social position, for example the role as an undergraduate or young professional.[32] Liminality presents both risk and reward for learners, while also providing a unique vantage point for reflection amid instability.[33] Interns, for example, accepted the risk of a destabilized identity, favoring the future reward of completing medical training in their desired specialty; simultaneously, they easily reflected on this liminal space during semistructured interviews.

The feeling of performance within a liminal space, as interns describe of their time rotating on services outside anesthesiology, has also been described in Goffman's[34] Performance Theory, suggesting that people portray a version of themselves in a social space that is considered favorable or is normalized. Patel et al[27] described the pervasiveness of the "fake it 'til you make it" mentality in medicine, one that most of our respondents relayed. Feelings of intellectual fraud and inaccurate self-assessment, also known as "imposter syndrome," are prominent across many subspecialties.[27] The concept of "othering," or being seen as an outsider because of a contrast between one's intersecting identities and those of the group, for example, being an anesthesiology intern on a surgical service, also shapes imposter syndrome and is prevalent among groups who are underrepresented in medicine,[35,36] as we also saw prominently among minority interviewees. Building on what is already known about these phenomena, the next step may be to develop curricula that establish safe places for interns to debrief sensitizing encounters and teambuilding interventions between different services who find themselves in common liminal spaces.

The ways in which interns seemed to sense a stronger sense of belongingness when their work aligned with their perceived purpose (ie, training to become an anesthesiologist) also aligned with literature describing professional identity formation and social learning within communities of practice. Wenger[17] describes 3 modes of belongingness in a CoP: engagement, imagination, and alignment; subsequent work has mapped these mechanisms to the field of physician education.[37] *Engagement*, or accessing meaningful experiences in a CoP, is dependent on building relationships with community members. Our interns emphasized the importance of forming a cohesive group, although there were barriers to cohesion with clinical teams outside anesthesiology and with CA residents and mentoring faculty. *Imagination* describes the process by which learners create an image of what it is like to be a member of a CoP. This process appeared to stagnate during the intern year in the setting of limited mentoring relationships, although quickly resumed during interns' *self-actualization* phase on entering the CA-1 year. Modifying intern anesthesiology rotations to support CA resident cohesion and faculty mentorship may better facilitate the *engagement* and *imagination* modes of belongingness.

Alignment, or a coordination to contribute to a broader purpose, was also desired among interns and intersects with research within organizational psychology. Meaningful work is associated with increased job satisfaction, and people who are able to design the composition of their work through a process known as *job crafting* often draw more meaning from their work.[38] Anesthesia interns cited misalignment with purpose while on rotations outside anesthesiology. Education has become increasingly learner centered,[39] but how learners are granted agency to shape their individual curricula remains an area of active inquiry.[40] Allowing interns to "job craft" portions of their internship may strengthen their perceived alignment with purpose or perception that they are doing meaningful work. Whether interns are participating in a transitional year or a dedicated internal medicine or general surgery preliminary year will alter what this idea looks like in practice. For example, an intern in a transitional year or general surgery preliminary year might select a thoracic surgery rotation if they are interested in pursuing a thoracic anesthesiology subspecialty. An intern in a preliminary internal medicine program may opt for a cardiology rotation if they are considering specialization in cardiac anesthesiology.

Future Directions

Our next step is to formulate a professional development curriculum targeting each phase of the Belongingness Journey identified, and to evaluate its effect on interns' perceived belongingness. Examples of interventions that may target each phase appear in Table 2 along with representative citations from analogous settings.[41-49] The curriculum will likely include (1) semistructured, periodic sessions with a facilitator to debrief concepts such as "otherness," "imposter syndrome," and alignment with purpose; (2) a retreat-style component of the orientation to strengthen group cohesion during

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trainees' initial transition into the liminal space of intern year; (3) a creative writing workshop to encourage reflection and explore the lived experience of trainees; (4) a formalized faculty mentorship structure or event to catalyze the formation of organic mentoring relationships; (5) coordination with affiliated departments through which interns rotate to identify ways to incorporate "job crafting" into the construction of the rotation schedule; and (6) coaching training for preceptors to support emerging CA-1s in their transition into a new liminal space.

Limitations

We acknowledge that ours is a single-center study at a large academic medical center with a residency program of approximately 88 trainees (21-23 trainees per class year). Nonetheless, the development of a sense of belongingness is a process undertaken by trainees across medical subspecialties, institutions, and communities of practice at large. We predict that the findings could be extrapolated to other interns in our program or to interns in future years, and that elements of their narratives are also likely reflected in those of anesthesiology interns at other programs. Additional work is needed to confirm these assumptions and to ascertain how the findings may differ in other residency programs, subspecialties of medicine, or among groups of residents with different racial, ethnic, or gender identities.

Another possible limitation of the study includes the positionality of the interviewer as a chief resident. Although the rapport between coresidents may have garnered more candid responses than those elicited from a faculty interviewer, the power differential may have influenced respondents' comfort. It is also possible that trainees who felt a greater sense of belongingness or trust were more likely to engage in the study. Nonetheless, 76% of the intern class was ultimately interviewed for the project and the preponderance of interns' narratives described a rich mix of experiences that either edified or destabilized their sense of belongingness (rather than strictly edifying experiences, for example). Another possible limitation is that fewer CA-1s than interns participated in the study; however, this phenomenon likely occurred because this group was interviewed in a second phase of interviews and their narratives of intern year were noted to overlap with those of the initial intern cohort; hence data saturation was reached faster among the CA-1 cohort and recruitment was closed.

Conclusion

This study has uncovered the complex pathways and processes by which anesthesiology interns develop a sense of belongingness in their CoP. The journey involves navigating a liminal space while performing roles that may conflict with their emerging professional identity, managing feelings of otherness in their rotations, and seeking connection in spite of limited direct contact with trainees and faculty within the specialty. We also find that as interns transition to their CA-1 year, they experience a phase of self-actualization, characterized by alignment of purpose. These insights highlight the importance of structured professional development curricula designed to support trainees in each phase of their belongingness journey. Future directions will involve implementing and evaluating these curricula to identify ways in which trainees can be supported through the challenges that they face in developing their professional identity and their sense of belongingness in their communities. By creating a more inclusive and supportive environment, we can facilitate a smoother transition for our trainees, ultimately advancing their professional growth and well-being.

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References

1. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychol Bull*. 1995;117(3):497-529.
2. Maslow AH. *Toward a Psychology of Being*. New York, NY: Simon and Schuster; 2013.
3. Lord C, ed. *Aristotle's Politics*. Chicago, IL: University of Chicago Press; 2013.
4. Vivekananda-Schmidt P, Sandars J. Belongingness and its implications for undergraduate health professions education: a scoping review. *Educ Prim Care*. 2018;29(5):268-75.
5. Strayhorn TL. Sense of belonging and student success at historically black colleges and universities: a key to strategic enrollment management and institutional transformation. In: Hinton SL, Woods AD, eds. *Examining Student Retention and Engagement Strategies at Historically Black Colleges and Universities*. Hershey, PA: IGI Global; 2019;32-52.
6. Goodenow C. Classroom belonging among early adolescent students: relationships to motivation and achievement. *J Early Adolesc*. 1993;13(1):21-43.
7. Pittman LD, Richmond A. Academic and psychological functioning in late adolescence: the importance of school belonging. *J Exp Educ*. 2007;75(4):270-90.
8. Ryan RM, Deci EL. Brick by brick: the origins, development, and future of self-determination theory. *Adv Motiv Sci*. 2019;6:111-56.
9. Hausmann LR, Schofield JW, Woods RL. Sense of belonging as a predictor of intentions to persist among African American and White first-year college students. *Res High Educ*. 2007;48:803-39.
10. Appleton JJ, Christenson SL, Kim D, Reschly AL. Measuring cognitive and psychological engagement: validation of the Student Engagement Instrument. *J Sch Psychol*. 2006;44(5):427-45.
11. Gkorezis P, Kalampouka P, Petridou E. The mediating role of belongingness in the relationship between workplace incivility and thriving. *Int J Employ Stud*. 2013;21(2):63-78.
12. Van Vendeloo SN, Brand PL, Verheyen CC. Burnout and quality of life among orthopaedic trainees in a modern educational programme: importance of the learning climate. *Bone Joint J*. 2014;96(8):1133-8.
13. Pfeifer CM. Evolution of the preliminary clinical year and the case for a categorical diagnostic radiology residency. *J Am Coll Radiol*. 2016;13(7):842-8.
14. Zaffini EJ. Communities of practice and legitimate peripheral participation: a literature review. *Update Appl Res Music Educ*. 2018;36(3):38-43.
15. Baker-Eveleth LJ, Chung Y, Eveleth DM, O'Neill M. Developing a community of practice through learning climate, leader support, and leader interaction. *Am J Bus Educ*. 2011;4(2):33-40.
16. Lave J, Wenger E. *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press; 1991.
17. Wenger E. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge, UK: Cambridge University Press; 1999.
18. Wenger E. Communities of practice and social learning systems. *Organization*. 2000;7(2):225-46.
19. Barriball KL, While A. Collecting data using a semi-structured interview: a discussion paper. *J Adv Nurs*. 1994;19(2):328-35.
20. Corbin JM, Strauss A. Grounded theory research:

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procedures, canons, and evaluative criteria. *Qual Sociol*. 1990;13:3-21.

21. Glaser BG. The constant comparative method of qualitative analysis. *Social Problems*. 1965;12(4):436-45.
22. Saunders B, Sim J, Kingstone T, et al. Saturation in qualitative research: exploring its conceptualization and operationalization. *Qual Quant*. 2018;52:1893-907.
23. Finlay L. Negotiating the swamp: the opportunity and challenge of reflexivity in research practice. *Qual Res J*. 2002;2(2):209-30.
24. Thomas JB. Participatory research methods: a methodological approach in motion. *Hist Soc Res*. 2012;13(1):191-222.
25. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349-57.
26. Rantatalo O, Lindberg O. Liminal practice and reflection in professional education: police education and medical education. *Studies in Continuing Education*. 2018;40(3):351-66.
27. Patel P, Martimianakis MA, Zilbert NR, et al. Fake it 'til you make it: pressures to measure up in surgical training. *Acad Med*. 2018;93(5):769-74.
28. LaDonna KA, Ginsburg S, Watling C. "Rising to the level of your incompetence": what physicians' self-assessment of their performance reveals about the imposter syndrome in medicine. *Acad Med*. 2018;1;93(5):763-8.
29. Turner V. Betwixt and between: the liminal period in rites of passage. In: Carus Mahdi L, Foster S, Little M. *Betwixt & Between: Patterns of Masculine and Feminine Initiation*. Chicago, IL: Open Court Publishing; 1987;3-19.
30. Cormier NR, Gallo-Cruz SR, Beard RL. Navigating the new, transplanted self: how recipients manage the cognitive risks of organ transplantation. *Sociology of Health and Illness*. 2017;39(8):1496-513.
31. Beech N. Liminality and the practices of identity reconstruction. *Hum Relat*. 2011;64(2):285-302.
32. Meyer JH, Land R. Threshold concepts and troublesome knowledge (2): epistemological considerations and a conceptual framework for teaching and learning. *Higher Education*. 2005;49:373-88.
33. Cook-Sather A, Alter Z. What is and what can be: how a liminal position can change learning and teaching in higher education. *Anthropology and Education*. 2011;42(1):37-53.
34. Goffman E. *The Presentation of Self in Everyday Life*. New York, NY: Peter Smith Publisher; 1959.
35. Osseo-Asare A, Balasuriya L, Huot SJ, et al. Minority resident physicians' views on the role of race/ethnicity in their training experiences in the workplace. *JAMA Netw Open*. 2018;1(5):e182723.
36. Rivera N, Feldman EA, Augustin DA, et al. Do I belong here? Confronting imposter syndrome at an individual, peer, and institutional level in health professionals. *MedEdPORTAL*. 2021;17:11166.
37. Adema M, Dolmans DH, Raat JA, et al. Social interactions of clerks: the role of engagement, imagination, and alignment as sources for professional identity formation. *Acad Med*. 2019;94(10):1567-73.
38. Berg JM, Dutton JE, Wrzesniewski A. Job crafting and meaningful work, In: Dik BJ, Byrne ZS, Steger MF, eds. *Purpose and Meaning in the Workplace*. Washington, DC: American Psychological Association; 2013;81-104.
39. Schreurs J, Dumbraveanu R. A Shift from teacher centered to learner centered approach. *International Journal of Engineering Pedagogy*. 2014;4(3):36-41.
40. Watling C, Ginsburg S, LaDonna K, et al. Going against the grain: an exploration of agency in medical learning. *Med Educ*. 2021;55(8):942-50.
41. Gunasingam N, Burns K, Edwards J, et al. Reducing stress and burnout in junior doctors: the impact of debriefing sessions. *Postgrad Med J*. 2015;91(1074):182-7.
42. Osta AD, King MA, Serwint JR, Bostwick SB. Implementing emotional debriefing in pediatric clinical education. *Acad Pediatr*. 2019;19(3):278-82.
43. Cohen TN, Griggs AC, Kanji FF, et al. Advancing team cohesion: using an escape room as a novel approach. *J Patient Saf Risk Manag*. 2021;26(3):126-34.
44. Faulkner SS, Faulkner CA, Cutsinger MM. Increasing employee cohesion utilizing a low-elements challenge course: a case study. *International Journal of Latest Research in Humanities and Social Science (IJLRHSS)*. 2021;1(11):1-9.
45. Edwards LM, Kim Y, Stevenson M et al. When it's needed most: a blueprint for resident creative writing workshops during inpatient rotations. *BMC Med Educ*. 2021;21:1-9.
46. Caine AD, Schwartzman J, Kunac A. Speed dating for mentors: a novel approach to mentor/mentee pairing in surgical residency. *J Surg Res*. 2017;214:57-61.
47. Guse J, Schweigert E, Kulms G, et al. Effects of mentoring speed dating as an innovative matching tool in undergraduate medical education: a mixed methods study. *PLoS One*. 2016;11(2):e0147444.
48. Winkel AF, Porter B, Scheer MR, et al. Evaluating the impact of coaching through the transition to residency. *J Gen Intern Med*. 2025;40(1):10-6.
49. Winkel AF, Gillespie C, Park A, et al. Bridging the gap from student to doctor: developing coaches for the transition to residency. *Med Educ Online*. 2023;28(1):2145103.

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Abstract

Background: Belongingness is an individual sense of "connection" or "acceptance" from others, created through an interaction between an individual and their surrounding environment, and impacts medical education. How anesthesiology interns develop a sense of belongingness within anesthesiology is poorly understood. This study explores the pathway and mechanisms by which anesthesiology interns develop a sense of belongingness.

Methods: Semistructured interviews were conducted with 23 anesthesiology trainees during the 2023-2024 academic year. A constructivist, qualitative approach rooted in grounded theory was used to generate a middle-range theory on the development of belongingness among anesthesia interns.

Results: The authors identified 4 primary facets of anesthesiology interns' Belongingness Journey described as (1) Stepping into liminality, (2) Cohesion with(out) contact, (3) Purpose-driven belongingness, and (4) Perceived self-actualization. As trainees entered the liminal space of internship, multiple mechanisms destabilizing their sense of belongingness emerged, described here as *performing normalcy* and *managing otherness*. Interns combated destabilization by widening their social networks, most often to include other interns, and less frequently to include clinical anesthesia residents and faculty mentors. Alignment with purpose appeared protective, and to enhance this alignment, interns turned to multiple strategies including *reframing* and *deliberate engagement*. Upon crossing the threshold into their next year of training, interns described a sense of self-actualization and renewed belongingness despite entering a perhaps equally liminal space.

Conclusions: Anesthesiology interns' idiosyncratic lived experiences track along a belongingness journey. Knowledge of this pathway may help to inform the creation of future professional development and belongingness curricula.

Keywords: Anesthesiology, graduate medical education, belongingness, community of practice, legitimate peripheral participation, professional identify formation

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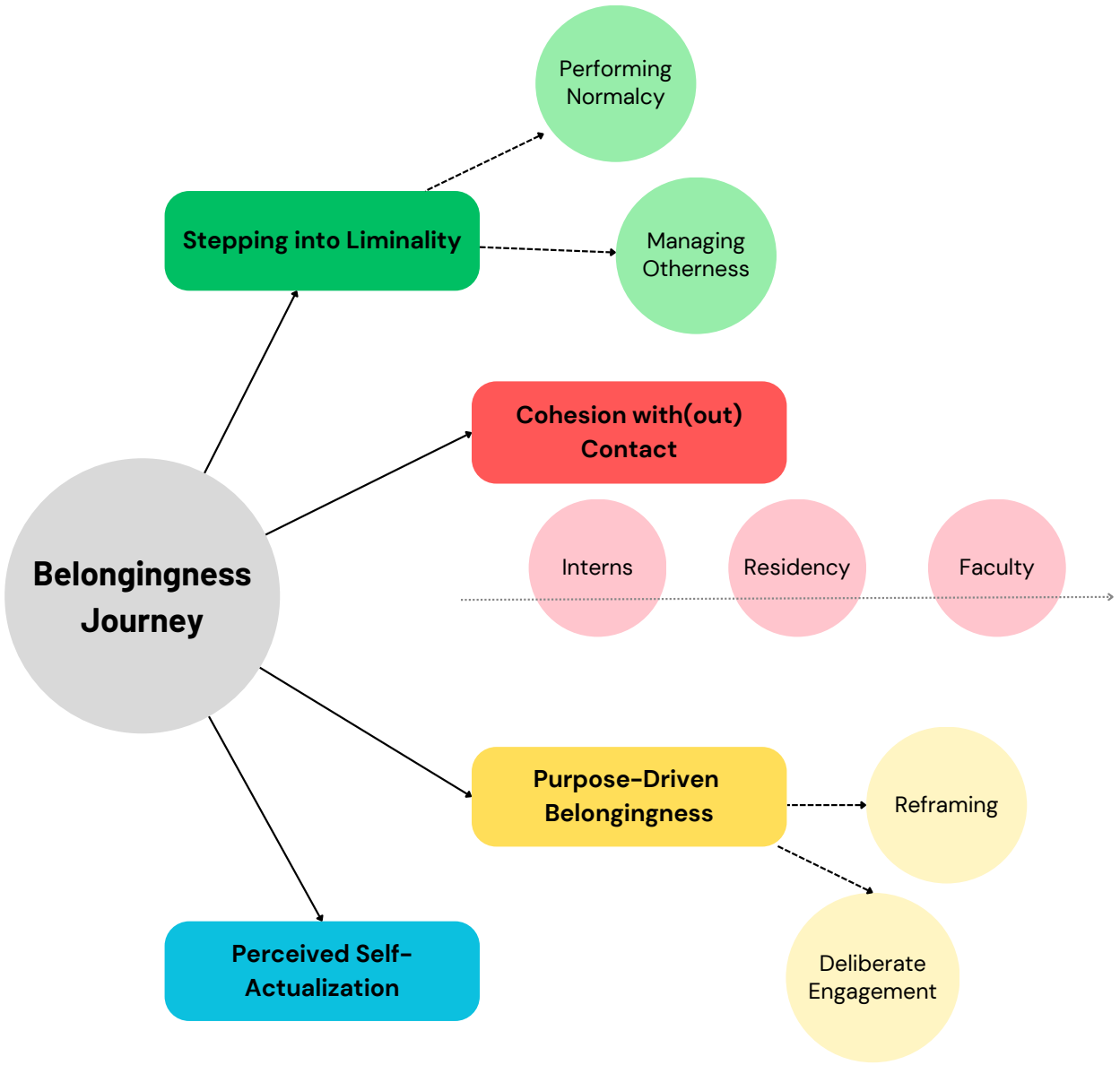
Figure

Figure 1. *Belongingness Journey. This figure maps the primary components of our anesthesiology interns' Belongingness Journey as discussed in the results. Interns described entering a liminal space, in which they experienced destabilization, further magnified by 2 primary experiences: performing normalcy and managing otherness. To combat the destabilization, respondents widened their social networks to include other members of their intern class, other anesthesiology residents, and, less often, faculty. Respondents also linked their perceived sense of belongingness with the extent to which they drew purpose from their work. Last, respondents described a breakthrough feeling of self-actualization and belongingness when they crossed the threshold from intern to first-year clinical anesthesiology resident despite entering a new liminal space.*



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Tables

Table 1. *Summary of the Core Findings of the Belongingness Journey, Including Its Primary Components, and Additional Representative Supporting Quotations Beyond Those Discussed in the Results Section*

Core Finding	Representative Quote
Stepping Into Liminality	"In the beginning of the year, I was thinking, okay, this isn't my actual home" (20c).
Mechanisms of destabilization: a) Performing normalcy	"I've always had this imposter syndrome from the beginning and I'm always kind of downplaying everything that I do. So for me to be a doctor finally…I think it's important to take a step back and realize, you know, I got this far for a reason. This is where I am and I deserve it and I worked hard for it and you know, I deserve the title" (12i).
b) Managing otherness	"Some of the different groups made you feel more belonging and more a part of something than others, but it always felt like you were a black sheep" (20c).
Cohesion With(out) Contact	"I feel like I belong to this group, yes, very much so. I feel like I'm part of the, you know, anesthesiology residency…I feel welcomed by the group. I just think like inherently…regardless of whatever kind of integration measures you can take…there's always going to be some degree of separation just by virtue of being on completely different rotation" (15i).
a) Touchpoints	"We can always come back to our department…but it's difficult because you'll be at one point where you're seeing a co-intern…for example, when I was at the VA, [another anesthesia intern] was on Coleman, so like there's a little bit of cohesion there, but then I was completed disconnected for 4 weeks on surgery" (16i).
b) With senior residents	When referring to the level of cohesion with CA residents, one trainee stated, "I would say the CA-3s, not at all except for the chiefs. And then for the rest of the program, very little, except for a few people that made it a point to reach out to us, like whether we live in the same building" (16i).
c) With faculty and mentors	"I didn't seek out any mentors" (20c). "But I wouldn't say that I have a direct mentor now" (4i). "And in terms of prior mentors, I had a medical school mentor, Dr. Pearl. And she was kind of like my research mentor career life mentor. And she was great" (11i).
Purpose-driven Belongingness	"It's going to be more frustrating and lead to more burnout because you lose a sense of purpose, the sense of like why am I putting myself through all this stress" (18c).
Strategies for aligning purpose: a) Reframing	"I think in the moment it feels like just surviving and now in hindsight everything is translatable" (18c).
b) Deliberate engagement	"Even on ICU, when people were struggling with some IVs and I would just go place them. That's kind of what I enjoyed doing during that rotation too. I felt that authority over my specialty, over my role in this hospital and even like my first day of ICU somebody had to be intubated…I was like, I'm anesthesia. I will do it. And I felt like such a great sense of pride" (17c).
Perceived Self-actualization	"I can see the light…I was really happy because I felt like I was finally doing something that I signed up for" (20c).

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Table 2. *Examples of Curricular Interventions That May Target Each Theme Identified in the Belongingness Journey Along With Accompanying References and Resources Demonstrating Prior Implementation in Analogous Settings*

Theme	Examples of Intervention	Supporting References and Resources
Stepping into Liminality	Semistructured debrief sessions with a faculty facilitator to unpack concepts of "imposter syndrome" and "otherness" during intern year.	Gunasingam et al 2015 Osta et al 2019
Cohesion With(out) Contact	A retreat-style or "outing" component of intern orientation (eg, escape room, ropes course) to enhance team cohesion	Cohen et al 2021 Faulkner et al 2021
	A Narrative Medicine writing workshop to encourage reflection and explore the lived experience of trainees	Edwards et al 2021
	A formalized faculty mentorship structure or event to catalyze the formation of organic mentoring relationships	Caine et al 2017 Guse et al 2016
Purpose-driven Belongingness	Incorporation of intern subspecialty preference in the selection of rotations and electives.	Watling et al 2021
Perceived Self-actualization	Coaching training for preceptors to support emerging CA-1s' transition into a new liminal space, foster connection, and help trainees grappling with their perceived alignment with purpose.	Winkel et al 2023, 2025

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Supplemental Online Material

Appendix 1. *Semistructured Interview Guide*

Domain	Questions
Sense of Belongingness	• Please consider the concept "belongingness." In your own words, how do you define this concept? • To which groups do you feel you belong professionally? Personally? • What factors strengthen your sense of belongingness in the anesthesiology department? • What factors deconstruct your sense of belongingness here in the anesthesiology department?
Social Networks	• Please describe your sources of support. In what areas do you feel well supported? Poorly supported? • With whom do you seek professional relationships in the workplace? • Describe the role of a mentor for you. Do you have a mentor in the anesthesia department? Outside the anesthesia department?
Team Cohesion	• Tell me about the extent to which you perceive cohesion within your resident class? Within the anesthesiology department?
Academic Self-efficacy	• Tell me about your motivations for succeeding in residency? • Please consider the concept of "thriving." What conditions do you need to thrive?
Personal and Professional Identity	• How do you introduce yourself to patients? To what extent do you identify as an anesthesiologist? ○ Probe: How do you define the concept of imposter syndrome. In what ways, if any, does this concept resonate with you? • Do you see yourself represented in the people around you (at work)? How does this impact your sense of belongingness? Similar lived experiences? ○ Probe: race, ethnicity, gender identity, culture, religion, professional identity, training.

Additional Questions for Interns	*Additional Questions for CA-1s*
• Describe how you felt interacting with residents in the anesthesiology department for the first time. With attendings? • If you have rotated in the operating rooms with the anesthesiology department, please describe your experience. How did you feel? If you have returned for a second rotation, how did your emotional response to the rotation differ?	• What words come to mind when you consider how it felt transitioning to CA-1 year. Describe the process? • What was it like to work with the anesthesiology department residents (and attendings) as an intern? What is it like now as a CA-1?