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ORIGINAL RESEARCH

Desperately Seeking Feedback: A Phenomenographic Study of Medical Students' Experiences During a 4-Year Longitudinal Feedback Curriculum

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Introduction: The focus of feedback in medical education recently shifted to a dialogic partnership between teachers and learners, co-creating effective feedback exchanges. We previously described a prototype, longitudinal 4-year curriculum for medical students to develop feedback-seeking behaviors. We explored the students' experiences as participants in this novel program.

Methods: Beginning in academic year 2017-2018, we assessed the 4-year experiences of 14 medical students with a phenomenographic, qualitative approach. Three waves of semi-structured, individual interviews were conducted during the first 3 years. Focus groups were conducted in the final year of the program. Meaning units were identified, and categories were determined by such units. An outcome space was created based on an ordered set of categories.

Results: Based on students' early experience with the curriculum, 4 categories formed the outcome space: prior or lack of experience, factors impacting experience, learning artifice and techniques, and improving feedback skills. A heavy emphasis was placed on the feedback experience related to the climate of the learning environment and the relationship with the feedback-giver. Learning different feedback techniques was important. As the students progressed through medical school while experiencing the feedback curriculum, the outcome space clearly evolved, with a greater emphasis on refining feedback-seeking skills. Students had a stronger growth mindset in tailoring the feedback they sought. Feedback-seeking became a natural and routine habit.

Conclusions: Medical students experienced an evolving emphasis on feedback-seeking. They increasingly recognized the value of effective feedback and confidently embraced feedback-seeking, using a range of techniques and refined approaches.

Keywords: feedback, longitudinal study, phenomenography, qualitative research, curriculum

Feedback in medical education continues to be an important matter,[1] and perspectives on the topic appear to be shifting. The traditional focus of feedback as a one-way exchange of information from the teacher to the learner has been replaced by a dialogic partnership that co-creates effective feedback.[2] This exchange redefines feedback as a two-way conversation that is influenced by sociocultural factors (eg, teacher characteristics, learners' self-images they wish to project).[3-5] Although the newer viewpoint is promising, feedback remains challenging for learners due to many factors: lack of psychological safety in the learning environment[6]; learner's readiness and willingness to accept feedback[7,8]; a politeness culture[9]; the MUM effect (ie, keeping quiet about unpleasant messages)[10], which prevents delivery of constructive feedback; and ongoing feedback myths[11]. Lacking education about feedback, medical students from 3 United Kingdom schools viewed feedback as a one-way process in

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which information is given to them. They perceived that they received more negative than positive feedback, and they used "feedback as war" as a dominant metaphor to describe the interaction.[12] These feedback challenges suggest that a more deliberate effort to improve learners' feedback skills may be needed.

We previously described how clerkship students spontaneously go about actively, perhaps desperately, seeking feedback.[13] We discovered that medical students developed unique indirect and noninquiry techniques (ie, artifice) to obtain the feedback they sought. This new perspective of feedback-seeking behaviors became the foundation of a prototype, longitudinal 4-year curriculum that we started in academic year 2017-2018. This innovative curriculum was developed to decipher what skills learners can use to promote effective feedback interactions. Our research question of this study was: what are the experiences of medical students specific to their participation in this novel, longitudinal feedback program?

METHODS

We applied the Standards for Reporting Qualitative Research guidelines in reporting our study.[14]

Setting and participants

The study was conducted at Maine Medical Center (MMC), an independent academic medical center in Portland, Maine, which is a 3-year regional campus for Tufts University School of Medicine. MMC has 25 residency and fellowship programs and is supported by more than 700 teaching faculty, most of whom are active clinicians. Typically, approximately 40 medical students are enrolled in the "Maine Track" program every year (https://medicine.tufts.edu/education/MD-maine-track). This 4-year medical school program includes 19 months of preclerkship courses followed by clinical courses in the remaining years. During the preclerkship years, in addition to traditional didactics and small-group activities (eg, problem-based learning), students participate in 20 longitudinal, office-based, full-day sessions with assigned community-based primary care preceptors. Students in the core clerkship year participate in either the traditional block model (typically 50% of the class) or a 9-month longitudinal integrated clerkship. Most longitudinal integrated clerkship students in the longitudinal integrated clerkship are placed in rural sites throughout Maine. The Advanced Clinical Clerkship year consists of 12, four-week blocks.

In April of academic year 2017-18, before the first educational activity on feedback, we invited all first-year Maine Track students (n = 37) to participate in periodic interviews during the 4-year feedback program. We invited students to volunteer once verbally and twice by email. The students were informed of the confidential nature of the study and signed consent forms. No incentives were given in exchange for their participation. The MMC Institutional Review Board determined the study to be exempt research on March 5, 2018 [1185650-1].

A manuscript describing the curriculum in-depth (eg, workshop sessions, readings) is a companion article in this journal. A brief summary of the components of the program are outlined in Table 1.

Study design

Our research aimed to understand the varied experiences of medical students in seeking feedback as this curriculum unfolded. As such, we used phenomenography as the qualitative method to guide data collection and analysis.[15] Under an interpretivism research paradigm, phenomenography assumes the students' reality of their feedback-seeking experiences are subjective and diverse. This non-dualistic ontology believes there is not one ultimate truth.[16] Phenomenography has been described in medical education,[17,18] and we believed a longitudinal qualitative approach would provide a clear picture of the students' emerging experiences in seeking feedback.[19,20] The final output of a phenomenographic study is an ordered set of categories that relate to one another, also known as the "outcome space."

Table 1. An Educational Program for Medical Students to Enhance Their Feedback-Seeking Approaches

Goal: To improve medical students' feedback-seeking capabilities.

Learner objectives: at the completion of the program, students should be able to

1. Describe the importance of feedback and the elements of effective feedback
2. Describe one's preferences and tendencies as they relate to how feedback is sought
3. Select the appropriate environment to seek feedback
4. Effectively utilize multiple techniques in acquiring feedback

Component	Learner goals	Description of activity	Timing	Conducted by
Feedback 101	Describe the importance of feedback and the elements of effective feedback	1-hour large-group workshop Interactive presentation with discussion	April 2018, first year	R.T., M.F.
Understanding Where I Am Coming From	Describe one's preferences and tendencies as they relate to how feedback is sought	1-hour large-group workshop Complete the following instruments: goal-orientation*, regulatory focus†, inquiry/monitoring‡ Review and reflect on instrument results in small groups	May 2018, first year	M.F, V.H.
Right Time, Right Place, Right Person, Right Technique	Select the appropriate environment to seek feedback	1-hour large-group workshop Trigger videotapes Based on "Right time, right place, right person, right technique" construct: -picking the right feedback provider -picking the best time to seek feedback -picking a good place to seek feedback	October 2018, second year	V.H., R.B., T.P., M.F.

Table 1. (continued) An Educational Program for Medical Students to Enhance Their Feedback-Seeking Approaches

Component	Learner goals	Description of activity	Timing	Conducted by
Right Time, Right Place, Right Person, Right Technique (cont'd)	Select the appropriate environment to seek feedback	1-hour large-group workshop Trigger videotapes -picking the right technique -modalities for receiving feedback (ie, verbal, written) Role-playing	October 2018, second year	V.H., R.B., T.P., M.F.
The Art (And Finesse) of Seeking Feedback	Effectively utilize multiple techniques in acquiring feedback	1-hour large-group workshop Review "Right time, right place, right person, right technique" construct Interactive session with fourth-year student panel centered on effective feedback	April 2019, orientation week for core clerkship year	R.T., T.P., M.F., R.B.
The Art (And Artifice) of Seeking Feedback	Effectively utilize multiple techniques in acquiring feedback	30-minute small-group sessions during Internal Medicine clerkship for block students 30-minute large-group session for longitudinal integrated clerkship students Review "Right time, right place, right person, right technique" construct, and debrief on feedback experiences to date	July 2019 through January 2020, core clerkship year	R.B., R.T., M.F.
Maximizing What Feedback You Get Out of the Fourth Year	Refine feedback-seeking behaviors	Email to fourth-year class[§] Reminder to try feedback techniques, 2 handouts	July 2020, advanced clinical rotation year	R.B.

*Goal orientation[28]
†Regulatory focus[29]
‡Inquiry/monitoring behavior[30]
§The original component of the program was planned to be in-person. In light of the COVID-19 pandemic, the authors virtually reinforced feedback approaches.

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Data collection

Three waves[19] of semi-structured individual interviews were conducted in-person and by telephone. The interview guides focused on the "what" and "how" of seeking feedback[21] and the research team used an iterative approach to slightly modify the guide with each successive wave. Interviews were scheduled based on student availability and typically lasted approximately 20 to 25 minutes. Wave 1 interviews were conducted at the end of the first year of medical school (May 9 to June 7, 2018) by one author (R.B.). Wave 2 interviews were completed by the same author (R.B.) during the students' second year (November 2 to 13, 2018). While the students were in their core clerkship year, 2 authors (R.B., V.H.) completed the wave 3 interviews between September 12 and October 10, 2019. Both authors have experience in conducting qualitative research interviews, and neither were in an evaluative role for any of the students.

The 2 focus groups in the Advanced Clinical Clerkship year were conducted by 3 authors (R.B., T.P., V.H.) via Zoom (Zoom Video Communications, Inc., Version 5.0.4, 2012-2020) on January 19 and February 3, 2021. We conducted focus groups in a virtual format in light of the restrictions on in-person gathering during the COVID-19 pandemic and for ease of reaching all students. The focus groups lasted approximately 45 minutes.

The individual interviews and focus groups were audiotaped. The interview audiotapes were transcribed by a hired transcriptionist verbatim and deidentified. Students were assigned alphanumeric codes based on the order in which they were interviewed in each specific wave. The Zoom transcription of the focus groups was edited for spelling and de-identified by 2 of the authors (R.B., V.H.). The text was uploaded into a software system (NVivo 10, QSR International, London, United Kingdom) to complete the qualitative coding and analysis.

Data analysis

We followed the steps of the phenomenographic method as suggested by others.[15,21,22] The first 5 transcripts from the wave 1 interviews were reviewed independently by 2 authors (R.B., V.H.) to identify "meaning units."[15] These 2 authors compared meaning units and agreed on which meaning units to use while reviewing the remaining transcripts. Thereafter, they determined initial groupings of meaning units into "categories."[15] The full research team met to review and reach consensus on the wave 1 meaning units, categories, and an initial diagrammatic representation of the outcome space. The team agreed to slight changes in the wording of 2 categories (eg, changing "factors facilitating" to "factors impacting," changing "prior experience" to "prior or lack of experience").

The wave 2 transcripts were independently reviewed by 2 authors (R.B., V.H.) and then any new meaning units or categories were compared. The full research team subsequently met to review all transcripts, and the team determined no changes were needed to the new meaning units and categories.

The wave 3 transcripts were independently reviewed by 2 authors (V.H., T.P.), and after comparing their findings, the authors agreed on new meaning units and categories. A third author (R.B.) reviewed all wave 3 transcripts independently and did not recommend any changes to their findings. The full research team then met to further refine the categories and outcome space. As the outcome space clearly indicated the students' feedback-seeking experiences were evolving over time, the research team reflected on potential theoretical frameworks that might explain such experiences.

The focus group transcripts were independently reviewed by 2 authors (R.B. V.H.), and after comparing their findings, the authors agreed on new meaning units. No new categories were determined. A third author (T.P.) reviewed the 2 transcripts independently and did not recommend any changes to their findings. The full research team met to finalize the categories and outcome space.

We attempted to ensure trustworthiness of the findings using several strategies: members of the research team have deep knowledge of the topic of feedback in medical education, all transcripts were independently reviewed by at least 2 investigators, members of the research team have substantial experience in curriculum development, and the research team held reflexive discourses during all steps of the phenomenographic process. We did not conduct individual member-checking as we focused on our interpretations of the student group holistically.[22]

Reflexivity

We recognize the importance of considering the backgrounds of the research team due to potential influence on the interpretation of the process and results. All authors were involved in a previous study on feedback-seeking behaviors of medical students. Three authors have been part of other research teams exploring the topic of feedback for several years. All authors have been involved in the education of medical students for more than a decade, some in leadership roles in developing curriculum. During our reflexive dialogs, while comparing reviews of transcripts and developing beliefs about the outcome space, we acknowledged the impact our past research on feedback could have on our findings. We believe our experience and views in this topic area potentially facilitated a higher level of conceptual thinking that might not occur for those new to this field, and we recognized the biases we brought to the analysis.

RESULTS

Fourteen students responded to our initial invitation for volunteer participants. All these students partook in the 3 waves of individual interviews. Thirteen students joined in 1 of 2 focus groups in their Advanced Clinical Clerkship year.

Figure 1 is a diagrammatic representation of the outcome space, showing the relationship of the categories to one another. The outcome space for medical students early in their experience with the educational program included 4 categories: prior or lack of experience, factors impacting experience, learning artifice and techniques, and improving feedback skills (Table 2). Before starting medical school, students described prior feedback experiences that influenced their perceptions of helpful feedback. These experiences were typically in the context of work-related teams or being coached in sports.

In the preclerkship years, the students have feedback experiences as part of their small-group educational activities (eg, problem-based learning) and interactions with their community-based primary care preceptors. A heavy emphasis was placed on the feedback experience in the context of these settings related to the climate of the learning environment and the relationship with the feedback-giver. Students quickly recognized certain learning environments were not optimal for seeking feedback, particularly with gaps in continuity of working with a faculty member. Establishing a good rapport and relationship with the feedback-giver was considered an important baseline factor in seeking feedback.

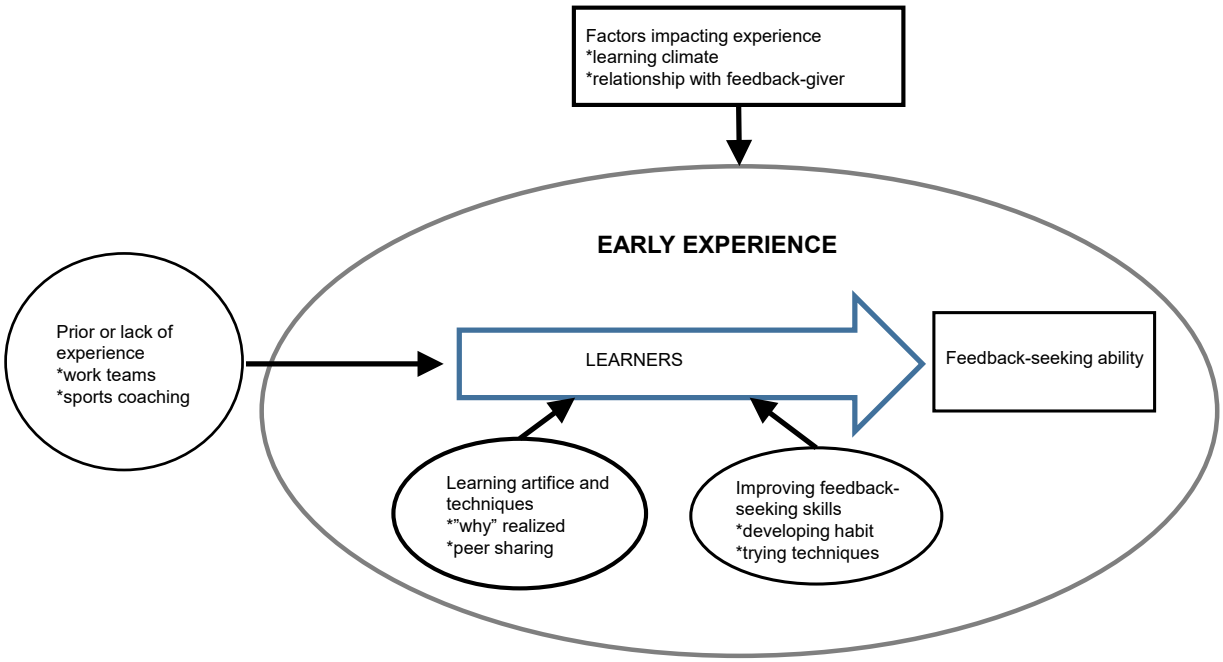

Figure 1. Diagrammatic Representation of the Outcome Space - Early Experience. The diagram shows the relationship of the categories to one another, which evolved over time. The arrows reflect the influence of one category on another. Thicker borders of shapes reflect the dominant categories. *Examples of meaning units within categories.

Table 2. Categories in Outcome Space from a Phenomenographic Study of the Longitudinal Curriculum

	Categories	Description	Examples*
Early experience	Prior or lack of experience	What experience medical students had with feedback before medical school	"I'm used to feedback I think from playing sports. I'm used to getting feedback that's not always positive, but meant to bring out something positive" [CW1] "I worked for 2 years in a clinical setting before this, which is all about feedback and I think generally it's pretty good as long as I'm getting something specific." [EW1]
	Factors impacting experience	Aspects of the clinical learning environment; contextual characteristics of specific educational activities	"I've been trying to ask the sorts of questions, 'Is there anything I can be doing differently?' but that doesn't always come as naturally. And I think with the speed of the clinic it's a little bit hard to get that in. But I'm learning better the particular times when there might be more down-time." [NW2] "I think I got really lucky with my preceptor, especially when I talk to my other classmates about how their general experience is going. I feel like my preceptor is really good about taking a second after each patient and just saying, 'We don't have time to talk about this now, but is there anything that you want to talk about [regarding] this patient later?'" [JW2] "I think that's a theme that I seem to be hearing is that the gap, having a break, even if it's every 2 weeks or whatever, it's a little hard to sort of get back into that feedback mode every time you come back and work with a preceptor." [IW2]
	Learning artifice and techniques	Students identifying importance of feedback, what features of the program are beneficial	"In one of the workshops we broke up into groups and talked, it was more of a space to hear from other students that they were struggling with the same thing…so I'm not sure if it was a specific, any specific techniques, but it certainly gave me the courage to go ahead and talk to my preceptor." [LW2] "I definitely could seek out feedback more, but I think I just need them to observe me more doing more things…And I've improved. But I think there's a lot of things that they haven't seen me do. So I'm missing feedback, but I think it's on me to get them to see me do those things and then to ask them for the feedback." [FW2]

Table 2. (continued) Categories in Outcome Space from a Phenomenographic Study of the Longitudinal Curriculum

	Categories	**Description**	**Examples***
Early experience (cont'd)	Improving feedback-seeking skills	Experience with specific feedback techniques	"I can definitely remind myself and make it a habit. Yeah, I guess anything that makes it more habit forming and makes us feel versatile in asking for feedback and understanding and being aware of…I think as we have been introduced to the many ways feedback can be used and how we can ask for it, but kind of continually being aware of the many ways." [MW1]
			"I did try the compliment one, where I was like, 'I really liked how you did this. And could you tell me how to do it better?' And I do think that helped." [MW2]
Evolving experience	Learning artifice and techniques	Students identifying importance of feedback, what features of the program are beneficial	"Now I see feedback as a tool to learn. And as the greatest tool to kind of shape my development and go forward as opposed to then it was more the fact that I was getting feedback or corrections meant that I was doing something wrong and that I had to then fix it." [JW3]
			"The feedback handout was the most helpful thing…I put it in my kitchen." [JW3]
			"And I think the thing that I found helpful was just a review. I needed some reminder or review. And we got the worksheet of each different strategies [sic] and just having that in the back of your pocket." [NW3]
			"Having space to learn from your peers, just having kind of a conversation about what things are working, what aren't" [FGG]
	Factors impacting experience	Aspects of the clinical learning environment; contextual characteristics of specific educational activities	"And at the end of the day we would set aside however long it took to get more serious feedback. So that was often like 5 or 10 minutes at the end of the day. Where I would have specific questions. He would answer them, or he could bring up things that he noticed over the course of the day. So I think setting up a certain time for that rotation was really helpful." [BW3]

Table 2. (continued) Categories in Outcome Space from a Phenomenographic Study of the Longitudinal Curriculum

	Categories	Description	Examples*
Evolving experience (cont'd)	Self and others	Recognition of feedback on oneself, and how feedback relates to others' needs	"Constructive feedback, it doesn't really feel like critical which is great because it makes me want to ask for more feedback…I think taking that learning approach and learning that no one is going to be great in their first couple months and this is all to learn more, even when someone is coming off as more critical." [IW3] "I think one thing that preceptors don't necessarily do and I think it's maybe because they're so far removed from medical school that they don't think to ask is this feedback model effective in teaching?" [DW3] "As an intern I like to think that I will help students knowing how important it is getting feedback now as a medical student going through the clerkships, that I would not only create the time but also initiate the conversation with the medical students because depending on what medical school, they might not have a program for getting comfortable with asking for feedback." [EW3] "I think what's been neat about learning about feedback in the medical school environment has been the ability to apply it in other areas of my life in terms of relationships." [JW3] "It just feels a little less high stakes…you're seeking feedback to improve your abilities and less your performance." [FGD]
	Refining feedback-seeking skills	Refining specific feedback techniques while expanding the breadth of feedback methods	"So sort of learning each person's style for feedback over the last few months has really helped with that. And it's helped develop sort of an individualized plan for each one of them in seeking feedback." [AW3] "Like trying to set aside time. Like, 'Hey at the end of today could be do this?' 'Hey can you watch me do this and tell me how it goes?'" [CW3] "And I keep asking. They're just kind of like, 'You're doing great'…so then I start asking more specific things and I kind of get feedback." [NW3] "…sometimes I'll use flattery…I try to use positive reinforcement every time I get feedback." [FGB]

Table 2. (continued) Categories in Outcome Space from a Phenomenographic Study of the Longitudinal Curriculum

	Categories	Description	Examples*
Evolving experience (cont'd)	Feedback-seeking	Actively seeking feedback with confidence and assertiveness	"I think you're just more comfortable with ---- more feedback on. I feel like you're more self-reflective of how far you've come and other things that you want to improve upon." [NW3]
			"I think for certain preceptors I can definitely ask more for feedback. For more formal feedback. But I do, now I'm more aware of how preceptors give feedback and what they're comfortable with. So I feel like I'm more in tune to like, oh, he's actually like critiquing me right now. And I didn't really realize that before... now I feel like I can just ask them more and have it not be awkward." [NW3]
			"Sometimes I'm just trying to watch really closely to figure out, am I'm doing something wrong. Am I figuring it out right? And then I'm like, I should just ask." [FW3]
			"We have a lot of freedom to work with people who aren't our core preceptors too, which has been really nice. And that's a great place to ask because they're not grading us and I find that they're pretty honest and have some good ideas about things we can improve on. So, that's been really helpful…I've worked a bunch with some of like the nurses and the physician's assistants, and they've been really helpful." [GW3]
			"Just do it" [FGH, when asked what advice you give to a first-year student about seeking feedback]

*Students were assigned alphanumeric codes based on the order in which they were interviewed in each wave (eg, student "CW1" was the third student interviewed in wave 1). For the focus groups, students were assigned an "FG" alphabetized code.

Learning different feedback techniques and opportunities also had a strong prominence early on. The students realized why feedback was important to their ongoing education and the stakes involved in receiving effective feedback. The students indicated the educational program helped them feel more confident, courageous, and self-aware in their feedback skills. Sharing feedback experiences and tips with their peers was a highly valued part of the program. Students did not consider reviewing their individual self-assessments (ie, goal orientation, regulatory focus, and inquiry vs monitoring behaviors) as a major influence on their feedback experiences.

The students recognized their need to improve their skills in seeking feedback. They appreciated the training in feedback skills being given early in medical school and the periodic reminders of this educational program to try different feedback methods. Even by wave 2, students noted their feedback experience was changing and improving. The educational program appeared to help students address their fears about feedback and affective reactions to negative feedback. By experimenting with different methods, and repeating practices they found helpful, students facilitated developing a "habit" in seeking feedback.

As the students progressed through medical school, their feedback experiences clearly evolved (Figure 1). They noticed less emphasis on factors impacting their feedback experience, as the students became more adept at picking the right time to seek feedback. The students also felt less emphasis on learning artifice and techniques, although they indicated that the periodic workshops and reminders of the feedback program were helpful.

An evolving category was self and others. This category reflected the students' awareness that when done well, feedback-seeking was motivating and reinforced their desire to seek even more feedback. The benefit of a growth mindset, which was discussed early in the educational program, re-emerged in their comments. Senior students described feedback as mattering more when preparing for residency. They felt less pressure due to lower stakes summative assessments, and more focused and directed feedback based on their career choices. The students underscored the need for faculty to receive more training in giving feedback. The students now recognized they had an important role in giving supportive feedback to more junior students.

As more senior students, they focused deeply on refining the feedback-seeking skills. They learned to try different feedback techniques with different faculty. Students advocated for being observed more during clinical activities. They became comfortable pushing back on feedback-givers who only said "you did fine." After being encouraged by the program to experiment with different techniques, the students tended to hone and stick with methods they found most successful (eg, the flattery approach).

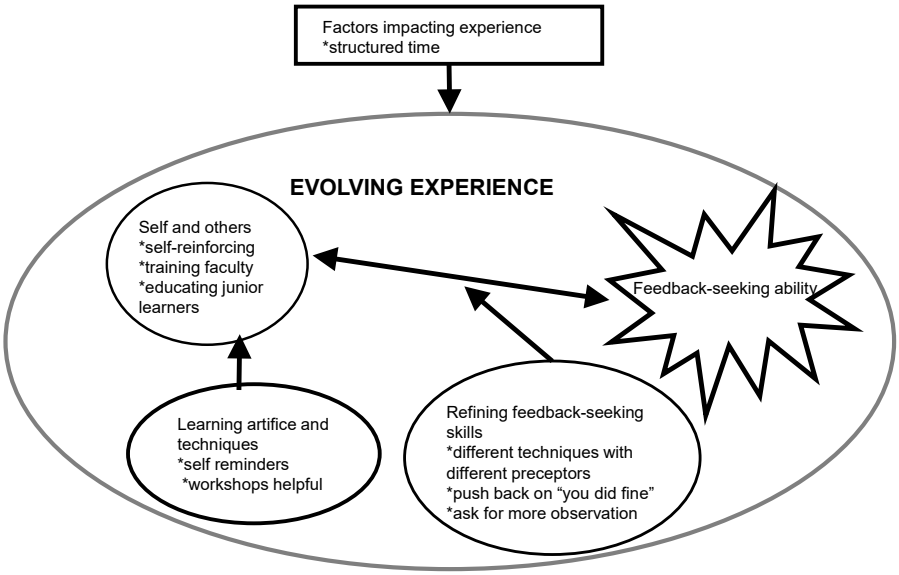

Figure 2. Diagrammatic Representation of the Outcome Space - Evolving Experience. The diagram shows the relationship of the categories to one another, which evolved over time. The arrows reflect the influence of one category on another. Thicker borders of shapes reflect the dominant categories. *Examples of meaning units within categories.

The students described their experiences as very active seekers of feedback, which had a bidirectional and reinforcing effect on their perceptions of themselves. They were proactive in seeking feedback, underscored by one student who stated "just do it!" The students expressed more confidence in their feedback-seeking skills, and they asserted themselves more. Early on, students learned that patients and specific faculty had valuable feedback for them. And later in the curriculum, students sought feedback from a wide range of interprofessional clinicians (eg, nurse midwives, medical assistants). By their senior year, students were more relaxed in seeking feedback, and feedback-seeking behaviors became a very natural and routine habit.

DISCUSSION

Our findings from this phenomenographic study add to the medical education literature by demonstrate the feedback-seeking abilities and perspectives that students gained as they experienced a novel longitudinal curriculum on feedback. The results suggest that as these students progressed through medical school, this curriculum helped them become more activated learners in seeking feedback rather than passive recipients of whatever feedback came their way. Students appeared to become adept at using a range of feedback-seeking methods and approaches.

We previously recommended that teachers and learners should be equal partners in co-creating an effective feedback exchange.[2] This alliance depends on a strong relationship, and other authors proposed the teacher-learner relationship is the "backbone" of meaningful feedback.[23] That said, we cannot presume students will have the requisite skills to partner well with their feedback-givers. Without an educational program on feedback for both teachers and learners, the feedback "dance"[2] could go poorly or result in learners experiencing feedback as confrontational.[12]

Our findings are supported by the theoretical model of Transformative Learning Theory.[24] This theory suggests that individuals initially have a disorienting experience. Early in medical school, students may receive unhelpful or jarring feedback. This initial feedback is followed by critical reflection of what they experienced, and then by the acquisition of new skills. Subsequently, they attempt new behavior. These phases are significantly enabled by communal dialog with peers and facilitated conversations with educators. The students in our study emphasized that a key aspect of the feedback curriculum was the ability to share their experiences with their fellow students. Providing a community of feedback seekers should be considered an important part of future programs.

We believe our educational program enhanced the acquisition of new feedback skills in the Transformative Learning Theory model. What is not apparent is how extensive a curriculum on feedback is needed for students to attain competencies in feedback. We and other authors have described "one and done" feedback workshops.[25,26] However, our findings suggest that a longitudinal program may have a greater impact than brief educational interventions. In participating in a longitudinal program, we expect students to develop a greater "feedback mindset," similar to that described in the literature on longitudinal faculty coaching of medical students.[27] That said, exclusively using a coaching model to promote feedback has limitations. Interactions with faculty may not be as non-evaluative, longitudinal, or frequent as with coaches, but feedback from such interactions could still be valuable in improving learner performance.

Limitations

In light of this study being conducted at a single institution and with a unique group of medical students, these findings have limitations. As discussed under reflexivity, the authors bring a specific set of biases and assumptions related to this topic, which may result in an incomplete outcome space (eg, feedback should be bidirectional, both parties co-create meaningful feedback as partners, learners with a growth mindset actively seek feedback on their performance). In addition, our findings were based on student self-report, and this study did not assess objective changes in feedback-seeking skills. We did not assess whether students participating in this educational program on feedback improved their performance compared to a group of students who did not have a similar opportunity. Focus groups and individual interviews were conducted with a self-selected subpopulation of the entire class. The semi-structured interview questions may have been too broad to define students' relational issues or mindset changes during the study. Although member-checking is not uniformly supported by educational researchers[22],

this additional step could have improved the trustworthiness of our findings. The pool of recruited students was limited, and students who volunteered to participate could have been influenced by factors that differed from those who did not choose to participate.

CONCLUSIONS

Medical students participating in our novel, longitudinal program designed to enhance their feedback-seeking skills experienced evolving areas of emphasis. Early in medical school, the students focused on the impact of the learning environment on feedback as they began to learn various methods to seek feedback. They recognized the value of effective feedback to their ongoing performance improvement and the value of sharing feedback experiences with their peers. As the students progressed though medical school, they confidently embraced feedback-seeking, using a range of seeking techniques and refining specific seeking approaches.

Conflicts of interests: None

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