

# Co-Creation: Piloting Student-Faculty Partnerships for Curriculum Innovation

Zack Gratz, BS; Alexa Kambol, MMP; Priscilla Vazquez, BS; Cameron Otto, BS; Hunter D'Acquisto, BS; Benjamin Bray, BS; Lauren Parsons, MD; Teresa Patitucci, PhD

## ABSTRACT

**Background:** In recent years, there has been an increasing drive to meaningfully engage students as partners and co-creators in teaching and learning.

**Methods:** Student-faculty partnerships were formed to optimize student satisfaction with select learning activities in a medical school course during the 2023-2024 and 2024–2025 academic years.

**Results:** The first year of co-creation yielded 6 novel patient-based discussion activities, which scored 5.23/6 on required student evaluations, while the second year focused on end-of-week review sessions that demonstrated significant improved evaluation scores from 2023-2024 to 2024-2025.

**Conclusions:** Initial implementation of co-creation proved beneficial for both students and faculty involved in course design, as well as for learners. Developing an institution-wide, structured co-creation model may further support and sustain such collaborations.

## BACKGROUND

Over the last decade, there has been an increasing drive in higher education to actively engage students as partners in educational design, with students and faculty working collaboratively in teaching and learning.<sup>1-4</sup> While students frequently contribute to course optimization through course evaluations, peer teaching, or serving on institutional committees, it is less common for students to be engaged directly in curriculum and course design.<sup>1,3,5</sup> However, students are key stakeholders in their learning and can contribute creative, innovative approaches to the design and implementation

• • •

**Author affiliations:** Medical College of Wisconsin (MCW), Milwaukee, Wisconsin (Bray, D'Acquisto, Gratz, Kambol, Otto, Vazquez); Department of Pathology, MCW, Milwaukee, Wisconsin (Parsons); Department of Cell Biology, Neurobiology and Anatomy, MCW, Milwaukee, Wisconsin (Patitucci).

**Corresponding author:** Teresa Patitucci, PhD, Medical College of Wisconsin, 8701 W Watertown Plank Rd, Milwaukee, WI 53226; email tpatituc@mcw.edu; ORCID ID 0000-0002-4342-0465

of educational initiatives.<sup>6,7</sup> Importantly, engaging students as partners in educational development has been shown to positively affect learning outcomes.<sup>2</sup>

Co-creation is a method within the students as partners pedagogical model in which students and faculty engage in joint decision-making that fosters mutual respect, shared learning, and collective ownership of educational innovation.<sup>1,7,8</sup> As described in the literature, co-creation benefits both student and faculty partners through skill development and professional growth.<sup>1-3,7,8</sup> Reported benefits include a better understanding of each other's perspective, a stronger sense of identity, and increased engagement with teaching and learning.<sup>1</sup>

In this pilot study, we describe the use of co-creation to design and optimize a new medical school course following a curriculum transition at the Medical College of Wisconsin (MCW), a private, Midwestern medical school, over 2 academic years. Year 1 focused on designing weekly patient-based discussions, while year 2 focused on refining weekly review activities. This model will be expanded in future years into a formal program, the Co-Creation Collaborative, to support student-faculty partnerships aimed at curriculum improvement across the institution.

## METHODS

### Educational Setting

In academic year (AY) 2023–2024, MCW launched the 3-phase MCWfusion curriculum. Phase 1 includes 10 integrated science courses (referred to as blocks), 4 early clinical courses, scholarly activities, and professional development. All integrated science blocks include weekly patient-based discussions combining basic, clinical, and social science content, as well as interactive Friday

review sessions to reinforce weekly content. The first integrated science block, Foundations of Medicine (FOM), incorporates topics from all foundational science disciplines to prepare students for future systems-based units.

### Foundations of Medicine Co-creation Pilot

One student partnered with FOM course directors each academic year. These partnerships were established organically when educationally minded students expressed interest in curriculum design and faculty sought a student perspective to optimize the course. Students were not formally trained but developed skills through one-on-one faculty mentorship, following previously described best practices for co-creation.<sup>1</sup>

For the first co-creation partnership during AY 2023-2024, a course director (author TNP) and a second-year medical student (author ZG) reviewed feedback from the previous curriculum, the structure of the new MCWfusion curriculum, and instructional methods to identify course goals. Co-creation efforts focused on developing 6 weekly patient-based discussions. In AY 2024-2025, both course directors (authors TNP, LNP) worked with a new student who had taken the initial iteration of FOM (author HD). The co-creators reviewed formal end-of-course evaluations from AY 2023-2024 and developed a plan to improve the course by creating supplemental activities for weekly Friday review sessions.

In both years, deliverables were created, reviewed, and modified independently, with meetings as needed to exchange feedback—averaging once per month—in addition to regular communication via email (see Figure 1). Co-creation extended to all course components except summative assessments to preserve exam integrity.

### Student Feedback

To receive a final grade, all medical students must complete formal end-of-course evaluations, which include the following questions: “Patient-based discussions enhanced my understanding of course content” and “Friday large-group sessions and summations enhanced my understanding of course content.” Additionally, to gather feedback regarding co-created supplemental learning activities, students completing FOM were sent an optional survey in AY 2024-2025 that asked, “How would you rate the week [1-6] problem set?” on a 5-point scale (5 = extremely useful, 1 = not at all useful). This survey was created and administered by the course directors using the Qualtrics survey platform (Qualtrics, LLC).

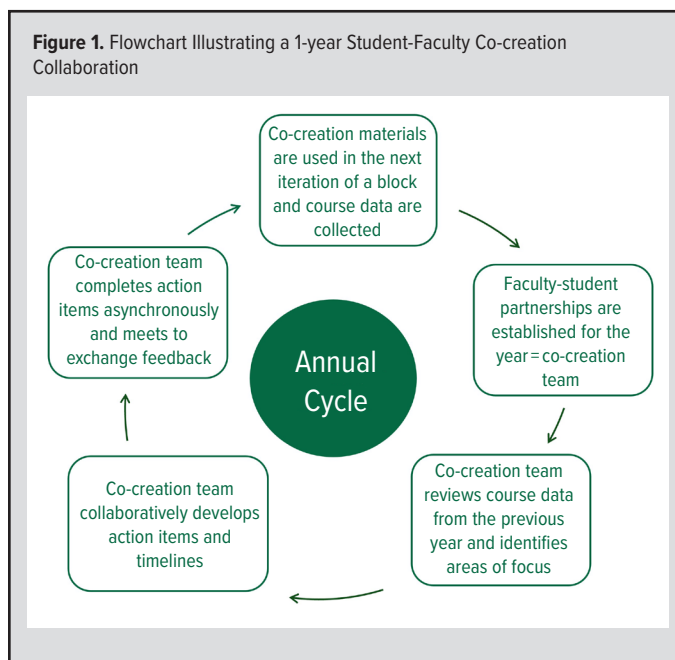
Data were analyzed using Prism software (GraphPad) via a 1-way ANOVA or *t* test as appropriate ( $\alpha=0.05$ ).

This project was considered an institutional quality assurance/quality improvement study that does not constitute “human sub-

**Table.** Student Roles in Co-creation

Curricular Aspect	Student Deliverables	Goals of Deliverables
Session design and delivery	<ul style="list-style-type: none"> <li>Revise lecture slides</li> <li>Emphasize key clinical concepts</li> <li>Provide rationale for quiz answers</li> </ul>	<ul style="list-style-type: none"> <li>Clarity and alignment of learning objectives</li> <li>Connect concepts to board exams</li> <li>Reinforce key session takeaways</li> </ul>
Content integration	<ul style="list-style-type: none"> <li>Revise patient-based discussions</li> <li>Revise Friday large-group supplemental activities</li> <li>Create supplemental practice materials</li> </ul>	<ul style="list-style-type: none"> <li>Ensure content aligns with learning objectives</li> <li>Simulate clinical reasoning in patient-based discussions</li> <li>Apply knowledge from weekly didactics</li> <li>Formative assessments</li> </ul>

**Figure 1.** Flowchart Illustrating a 1-year Student-Faculty Co-creation Collaboration



jects research” by the MCW Institutional Review Board and was determined to be exempt.

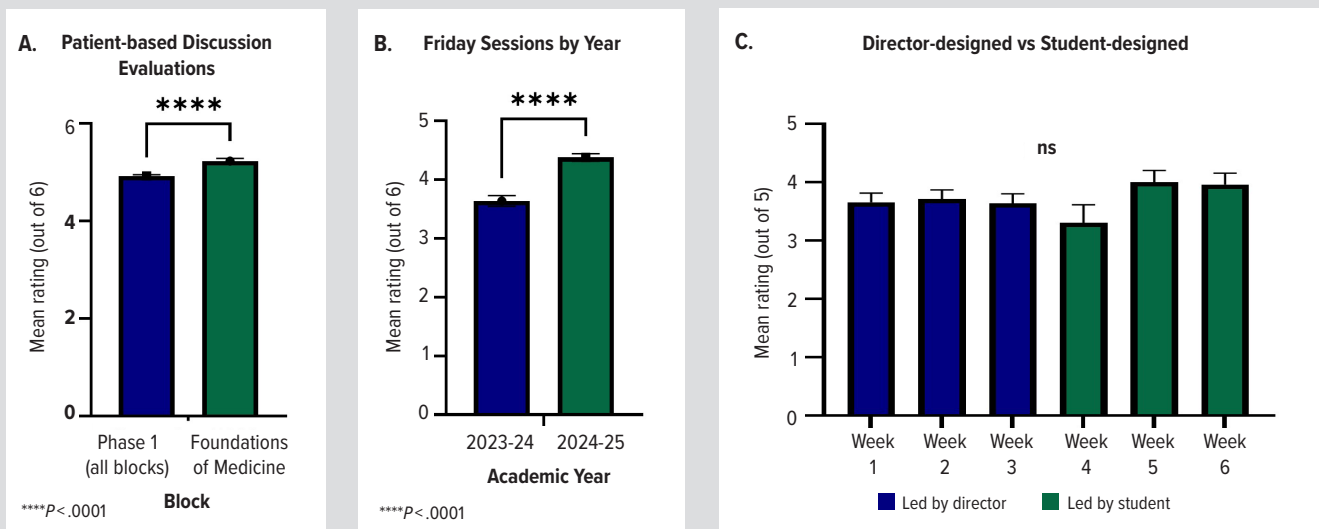
### RESULTS

Over 2 years, student-faculty collaborations were instrumental in designing and improving the Foundations of Medicine course. Students provided a unique perspective given their knowledge of other courses, preparation for the United States Medical Licensing Examination (USMLE) Step 1, and clinical clerkships. They applied this learner perspective to revising lecture slide decks, generating practice questions, refining patient-based discussions, creating high-yield review activities, and identifying areas for integration with third-party resources (Table).

### Co-Creation AY 2023-2024

For faculty directors, a major challenge in designing the FOM course was integrating content spanning the prior curriculum into a single cohesive course and introducing 6 new patient-based discussions aimed at incorporating early clinical concepts. The first co-creation student partner, who had completed the previous preclinical curriculum, worked with the course directors to

**Figure 2.** Student Evaluations of Patient-Based Discussions and Friday Review Sessions



A. Comparison of mean responses to the required evaluation question: “Patient-based discussions enhanced my understanding of course content” between Foundations of Medicine and all Phase 1 integrated science blocks in AY 2023-2024. Response scale: 6=strongly agree; 1=strongly disagree. Error bars represent mean±SEM. \*\*\*\**P*<.0001

B. Comparison of mean responses to the required evaluation question: “Friday large group sessions and summations enhanced my understanding of block content” between AY 2023-2024 and AY 2024-2025. Response scale: 6=strongly agree; 1=strongly disagree. Error bars represent mean±SEM. \*\*\*\**P*<.0001

C. Comparison of mean responses to the optional evaluation question: “How would you rate the week [1-6] in-class problem set?” Response scale: 5=extremely useful; 1=not at all useful; *n*=50. Week 1: mean, 3.657; SD, 0.9375; week 2: mean, 3.714; SD, 0.810; week 3: mean, 3.640; SD, 0.8103; week 4: mean, 3.308; SD, 1.109; week 5: mean, 4.000; SD, 0.8819; week 6: mean, 3.960; SD, 0.9781. Error bars represent mean±SEM. ns

Abbreviations: AY, academic year; SEM, standard error of the mean; ANOVA, analysis of variance; ns, not statistically significant.

sequence material, determine appropriate content depth, and develop patient-based discussions to reinforce basic science concepts through realistic patient care scenarios.

Patient-based discussions were well received, with a mean score of 5.23/6 in response to the question, “Patient-based discussions enhanced my understanding of course content” (mean, 5.23; SD, 0.96; *n* = 269; 95% CI, 5.12-5.35), which was significantly higher than ratings for this question across all integrated science blocks in Phase 1 (mean, 4.93; SD, 1.16; *n* = 2673; 95% CI, 4.89-4.97) (Figure 2A; *P* = <.0001 by *t* test).

### Co-Creation AY 2024-2025

In AY 2023-2024, responses to the question “Friday large-group sessions and summations enhanced my understanding of course content” received the lowest student satisfaction ratings, making refinement of these sessions the primary focus of co-creation in AY 2024-2025. Initially, Friday sessions included a 1-hour review of that week’s patient-based discussion followed by a 1-hour question-and-answer session with faculty experts. After co-creation revisions, students instead completed a high-yield problem set integrating weekly concepts before the question-and-answer session. Examples included a signaling pathway builder (week 2) and antibiotic graphical organizers (week 5). The question-and-answer session was reformatted, so each question was preceded by a summary slide to highlight areas of emphasis.

The course directors designed Friday activities for weeks 1-3, and the co-creation student designed activities for weeks 4-6, with weekly meetings to exchange feedback. Institutional content experts reviewed all activities for alignment with their instructional sessions.

In formal evaluations, student ratings of Friday sessions improved significantly from 3.64/6 (SD, 1.51; *n* = 269; 95% CI, 3.459-3.821) in AY 2023-2024 to 4.38/6 (SD, 1.07; *n* = 270; 95% CI, 4.252-4.508) in AY 2024-2025 (*P* = <.0001 by *t* test) (Figure 2B).

The optional survey evaluating individual Friday problem sets yielded 50 responses (18.5% response rate). All 6 AY 2024-2025 activities were rated as useful, with no significant difference between director- and student-designed materials by 1-way ANOVA (Figure 2C).

### DISCUSSION

Throughout the FOM co-creation pilot, student roles varied from consultants to creators of new content depending on course needs, reflecting prior recommendations that emphasize adaptability as a cornerstone of sustainable co-creation.<sup>4</sup> These efforts were well-received, as evidenced by student evaluations showing no significant difference in ratings of student- versus faculty-developed materials. In alignment with previously published work, student-faculty partnerships provided opportunities for learners to prac-

tice curriculum development skills and strengthened student collaborators' interest in future medical education roles, while faculty benefitted from timely, insightful student perspectives.<sup>1,2,5</sup>

Implementations of co-creation at other institutions have often been brief, informal, and constrained by limited by faculty time, hindering long-term commitment.<sup>9</sup> Despite its benefits, co-creation can face barriers.<sup>4,6,7</sup> For example, inherent power dynamics may pressure students to maintain positive impressions with faculty who later evaluated them for residency.<sup>7</sup> Faculty also may be reticent to partner with a student due to past experiences with anonymous student feedback that may feel adversarial.<sup>4,5,9</sup> Establishing psychological safety through active listening and respectful communication can help both parties in navigating critical feedback, sharing solutions, and addressing conflicting perspectives.<sup>1,7</sup>

### Limitations and Next Steps

This study is limited to a single site that lacks a control group because the intervention began with the launch of a new curriculum. Additionally, the optional survey used to evaluate Friday review sessions had an 18.5% response rate, introducing potential response bias if only students with strong opinions chose to participate. The low response rate may reflect survey fatigue or the timing of distribution. Finally, evaluation metrics were limited to learner satisfaction rather than objective measures of comprehension; however, prior literature suggests that partnering with students can positively influence learner outcomes.<sup>2</sup> Future work will incorporate objective student performance data to evaluate the effectiveness of co-creation on course design.

The success of this pilot has led to development of the Co-Creation Collaborative (CCC) to provide a structured approach to student-faculty partnerships. Moving forward, this CCC will support co-creation efforts across the 10 Phase 1 integrated science blocks. A student leadership team will facilitate creation, monitor progress, and provide support. To address barriers to co-creation, leadership will provide documents outlining best practices for effective collaboration.<sup>1</sup> A survey will be administered to all student and faculty co-creators after 1 year of participation to assess perceptions of the program.

### CONCLUSIONS

Co-creation through student-faculty partnerships has the potential to support both students and faculty, promoting mutual professional growth and enhancing medical school curricula.

**Financial disclosures:** None declared.

**Funding/support:** This work was supported by the Medical College of Wisconsin Learning Resources Fund.

### REFERENCES

1. Könings KD, Mordang S, Smeenk F, Stassen L, Ramani S. Learner involvement in the co-creation of teaching and learning: AMEE Guide No. 138. *Med Teach*. 2021;43(8):924-936. doi:10.1080/0142159X.2020.1838464
2. Mercer-Mapstone L, Dvorakova SL, Matthews KE, et al. A systematic literature review of students as partners in higher education. *Int J Stud Partners*. 2017;1(1). doi:10.15173/ijasp.v1i1.3119
3. Healey M, Flint A, Harrington K. *Engagement through partnership: students as partners in learning and teaching in higher education*. The Higher Education Academy; 2014.
4. Bovill C. Co-creation in learning and teaching: the case for a whole-class approach in higher education. *High Educ*. 2020;79(6):1023-1037. doi:10.1007/s10734-019-00453-w
5. Geraghty JR, Young AN, Berkel TD, et al. Empowering medical students as agents of curricular change: a value-added approach to student engagement in medical education. *Perspect Med Educ*. 2020;9(1):60-65. doi:10.1007/s40037-019-00547-2
6. Burk-Rafel J, Jones RL, Farlow JL. Engaging learners to advance medical education. *Acad Med*. 2017;92(4):437-440. doi:10.1097/ACM.0000000000001602
7. Suliman S, Allen M, Al-Moslih A, et al. Achieving 'something that everybody has invested in': perspectives of diverse stakeholders during co-creation of a transition to residency curriculum. *BMC Med Educ*. 2024;24(1):650. doi:10.1186/s12909-024-05573-1
8. Nasri N, Xu W, Jamaludin KA, Mohamad Nasri N. Socio-culturally responsive medical professionalism and ethics education: A curriculum co-creation approach. *Med Educ Online*. 2024;29(1):2303209. doi:10.1080/10872981.2024.2303209
9. Gheihman G, Callahan DG, Onyango J, Gooding HC, Hirsh DA. Coproducing clinical curricula in undergraduate medical education: Student and faculty experiences in longitudinal integrated clerkships. *Med Teach*. 2021;43(11):1267-1277. doi:10.1080/0142159X.2021.1935825

advancing the art & science of medicine in the midwest

**WMJ**

*WMJ* (ISSN 2379-3961) is published through a collaboration between The Medical College of Wisconsin and The University of Wisconsin School of Medicine and Public Health. The mission of *WMJ* is to provide an opportunity to publish original research, case reports, review articles, and essays about current medical and public health issues.

© 2026 Board of Regents of the University of Wisconsin System and The Medical College of Wisconsin, Inc.

**Visit [www.wmjonline.org](http://www.wmjonline.org) to learn more.**