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Using Faculty Learning Communities to Create a Sustainable Community of Practice That Promotes Curricular and Instructional Change

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Abstract

When implementing new evidence-based pedagogy in a course to improve student learning, the faculty must address the course goals, teaching strategies, and assessments. The time required to make these changes can be challenging for faculty who are juggling their research and service commitments. To address this challenge, higher education practitioners have encouraged these pedagogical changes through Communities of Practice (CoP), particularly Faculty Learning Communities (FLC). Faculty gain a deeper understanding of the topic while advancing the use of evidence-based teaching strategies. However, while short-term approaches are often discussed, identifying effective strategies to sustain a long-term pedagogical change through an FLC experience, especially in engineering education, has been a challenge and remains underexplored in the literature on faculty development.

We have developed and assessed an FLC model to support curricular and instructional change, as part of a sustainable faculty development program. In this paper, we describe how this three-year FLC was designed to promote entrepreneurially minded learning (EML) for our students and developed into a transdisciplinary EML and design CoP. The FLC outcomes were based on the framework developed by the Kern Entrepreneurial Engineering Network (KEEN) and funded through a three-year grant from the Kern Family Foundation

We advanced our FLC model through three iterations and adapted it to the needs of our faculty, while also dealing with constraints from the COVID pandemic. To lower barriers to faculty participation, we designed our program to take place during the academic year, meeting approximately once a month for six sessions at 90 minutes each session. The meetings are active workshops, in which the facilitators model activities as instructors, and the faculty engage as if they were students. Faculty are supported with teaching resources and by attending three 1:1 hour-long sessions with the FLC facilitator. They also administer three “micromoment” activities (2-30 minutes) in their classes, which can then be developed into a larger implementation for a published KEEN Card.

The KEEN FLC was implemented in three academic years 2019-2022 with three cohorts and 20 STEM faculty members across eight departments. By also engaging faculty from previous and current cohorts, we helped to build our community. We formally assessed the impact of this program on faculty using surveys and other assessment tools. Faculty reported not only learning more about EML but also implementing best teaching practices based on their FLC experience.

With strong support, immediate implementation of the pedagogy, and focus on value to participants, we created a model for faculty to improve their teaching and enriched student experiences. By making the pedagogical changes manageable, faculty will be successful in the implementation and more likely to sustain this practice.

Introduction

Reform efforts in teaching STEM undergraduate courses have become a high priority because of the critical workforce needs in those areas [1]. When implementing new evidence-based pedagogy in a course to improve student learning, faculty must address the course goals, teaching strategies, and assessments [2]. The time required to make these changes can be challenging for faculty who are juggling their research and service commitments. To address this challenge, higher education practitioners have encouraged these pedagogical changes through Communities of Practice (CoP), particularly Faculty Learning Communities (FLC) [3-5]. An FLC provides faculty with an opportunity to gain a deeper understanding of a particular teaching approach and to advance their use of evidence-based teaching strategies, which they can then put into practice to improve their teaching over the course of a year [5]. The FLC creates a community, and offers ongoing coaching. However, FLCs often focus on short-term approaches to pedagogical change [5]. It has been a challenge for FLCs to sustain long-term pedagogical change, especially in engineering education, and this area remains underexplored in the literature on faculty development.

At the University of North Carolina at Chapel Hill (UNC-Chapel Hill), we developed and assessed a sustainable FLC model that has a goal to support curricular and instructional change by promoting entrepreneurially minded learning (EML) in the classroom. The FLC outcomes were based on the framework developed by the Kern Entrepreneurial Engineering Network (KEEN) [6]. We developed this FLC to embed EML in all of the engineering courses in our curriculum. The goal of the FLC was to equip faculty with new teaching strategies and resources to implement EML in their courses. The FLC model established a sense of community and promoted networking by using the KEEN resources, such as the Engineering Unleashed platform [7], online forums, and professional development.

We advanced our FLC model through iterations over three years by adapting the FLC to the needs of our faculty, while also dealing with constraints from the COVID pandemic. To lower barriers to faculty participation, we designed our program to take place during the academic year, meeting approximately once a month for six sessions at 90 minutes each session. The meetings were active workshops, in which the facilitators modeled activities as instructors, and the faculty engaged as if they were students. Faculty were supported with teaching resources and by attending three one-on-one hour-long sessions with the FLC facilitator. They also administered three “micromoment” activities (2-30 minutes) in their classes, which gave them an opportunity to start with simple implementations of EML in the classroom.

With strong community support, immediate implementation of the pedagogy, and focus on value to participants, the UNC-Chapel Hill KEEN FLC (UNC KEEN FLC) is a model for faculty to improve their teaching and to create enriched student experiences. By making the pedagogical changes manageable, faculty are more likely to be successful in implementing and sustaining this practice. In this paper, we describe how this three-year FLC was designed to promote EML for our students, and it evolved into a transdisciplinary EML and design CoP.

Background

Faculty Learning Communities

Higher education instruction is transforming from the traditional, lecture-based approaches to hands-on, authentic learning experiences [8]. Evidence-based teaching practices are necessary for STEM students' skill development. However, integrating these types of pedagogies can often be difficult for faculty because of the time constraints and limitations. Consequently, curricular change can be daunting to faculty because of a focus on research activities that are critical for promotion and tenure, the time constraints from using these active learning strategies, student resistance to this type of learning, lack of ongoing professional development, and expectations of faculty about teaching and learning [5].

Higher education is adopting a model to support pedagogical change through a Community of Practice (CoP), a group of people who engage in a process of collective learning in a shared domain of human endeavor [9]. CoPs require intellectual leadership, shared enthusiasm for a goal, and self-selection of members to join the community in which members experience belonging to a community [10]. One type of CoP is an FLC, a group of faculty and professional staff who engage in an active and collaborative program to enhance the quality of teaching and learning [11, 12]. These communities can support faculty's adoption of evidence-based practices with the use of characteristics and features of community and promoting instructional practices in a research-based approach that can lead to learning [10].

The KEEN Framework and Support for EML

The KEEN Framework encourages students to have a constant curiosity, habitually connect information from many sources to gain insight and manage risk and create value for others from unexpected opportunities as well as persist through and learn from failure [6]. The Framework is designed to promote entrepreneurial minded learning (EML), which is a student-centered, constructivist pedagogy that promotes the "3C's" of building curiosity, making connections, and creating value. This helps students to develop methods of integrating knowledge, identifying opportunities, and performing self-directed and continuous learning [13].

KEEN uses an online community and resource center for engineering educators, Engineering Unleashed [7], which is designed to support the implementation of EML. The platform provides faculty with a variety of resources and tools, including instructional materials, case studies, magazines, videos, and other materials. One way that the faculty shares instructional materials is through KEEN Cards [14]. A KEEN Card includes instructions and resources so that faculty and instructors who use the Engineering Unleashed platform can adapt this activity for their own courses [14]. It can also be used to network and connect with engineering educators not only within the network, but anyone who has joined the community.

Methods

Overview

The FLC was led by a faculty member and staff member who have experience in engineering education and EML. The goal of the FLC is to cultivate a sense of community among participants, while also equipping them with innovative instructional tools that promote EML among their students. Other best practices in teaching are covered as well, such as how to write

student learning objectives. Faculty are all expected to develop new activities that they can implement in their courses and publish at least one activity as a KEEN Card [14].

Participants

There were 20 faculty members who participated in three cohorts from eight different departments, including the department of applied physical sciences (n=7), biology (n=3), physics (n=3), computer science (n=2), chemistry (n=2), earth, marine, and environmental science (n=1), math (n=1), and neuroscience (n=1). Faculty in the Department of Applied Physical Sciences were required to participate. Other faculty were teaching courses that were part of the new engineering major and minor in the Applied Physical Sciences department. Year 1 (2019-2020) included seven participants from four departments, Year 2 (2020-2021) included five participants from four departments, and Year 3 (2021-2022) included eight participants from seven departments. Participants were recruited in the spring using flyers and emails to STEM department heads and one-on-one consultations.

Funding

Our FLC was supported by a grant from the Kern Family Foundation. This provided support to the FLC leaders and a $5000 stipend for each participating faculty member. It also funded miscellaneous expenses for supplies and refreshments.

Monthly Meetings

The monthly meetings were outlined to include topics related to EML, as well as topics that are best practices in STEM education. The topics evolved with the program based on the needs of the faculty and the objectives of the UNC KEEN Program. The themes for year 3 are outlined below in Table 1.

Table 1. Outline of the UNC KEEN FLC Meetings in year 3

Month	*Topic*	*Description*
October	Introduction to KEEN and Stimulating Curiosity	In Part I of the meeting, faculty were introduced to the KEEN Network, the Framework, Engineering Unleashed, and other accessible resources through the platform. In Part II, the FLC learned how to integrate curiosity strategies, including Question Formulation Technique, which was modeled through a Mural online collaborative tool. The session concluded with a one-minute paper where faculty answer three questions: What did you take away from today's session? What would you improve from today's session? What questions do you still have from today's session?
October	Coaching Session 1:1	KEEN Program Facilitators met one-on-one to ask questions and gain clarity on the KEEN Framework. The facilitators presented and reviewed learning objectives and Bloom's

		Taxonomy depending on the faculty member's previous knowledge
November	Building Connections in your Course	Faculty were introduced to connection strategies with an example related to standard deviation, a list of strategies and examples, and an activity using one of the connection strategies, concept mapping. Faculty worked together to be in the shoes of students using concept mapping. They were then allocated time to plan their micromoment activity for immediate implementation following.
December	Creating Value through Motivation	Facilitators led a discussion to describe what value means related to the KEEN Framework and to the students. Creating value was discussed in two meetings. In this meeting, faculty were introduced to Deci and Ryan's Self-Determination Theory [15] and how students engage in activities based on autonomy, competence, and relatedness. Undergraduate students were invited to discuss with faculty what motivates them and what they find valuable in courses. Faculty asked questions to understand student motivation through their eyes.
January	Creating Value through your teaching	Faculty participated in discussions and activities to describe how to integrate creating value strategies within their courses and immediately implement the following. Facilitators shared resources and examples to support faculty in their implementation.
February	Making + 3C's	The Education Program Manager at the university makerspace discussed how to use the 3C's to integrate making into their courses. Faculty complete a guided activity in small groups to help to design their own making activity with the 3C's. FLC Facilitators also introduce the KEEN Card to faculty to prepare for their own KEEN Card design.
March	Coaching 1:1	The KEEN Program Coordinator met one on one with FLC participants to discuss and model how to create a rubric for their KEEN Card. They also discussed the timeline to create their KEEN Card and an opportunity for the Coordinator to answer questions.

April	Coaching 1:1	Faculty presented their ideas and shared their activity rubric for feedback.
May	3C's Together	Faculty heard from a KEEN leader who shared how they use the 3C's in their teaching. Faculty presented their KEEN Cards to the FLC.

Some faculty were unable to participate in the year-long program but wanted more exposure to the topics covered in the FLC. Therefore, we created an "EML Crash Course" in which faculty participate in a two-hour workshop. The agenda included the following:

- Introduction to curiosity, implementation examples, and faculty participation in a Question Formulation Technique micromoment activity for COVID testing methods
- Introduction to connection, implementation examples, and faculty create a concept map for renewable energy
- Introduction to creating value and discussion
- Intrinsic Motivation/Self-Determination Theory with student/faculty discussion
- Planning your own micromoment activity

We found that this crash course was an excellent way to introduce methods of using EML in the classroom without a huge faculty time commitment, and we plan to continue this in the future, both as a refresher and to introduce new faculty to EML.

FLC Resources for Easy Design and Implementation

In order to provide faculty with a concise description of EML strategies, we prepared an EML Implementation Guide. Each guide included a list of five to seven strategies, ranging from small-scale activities up to larger-scale multi-week projects. Faculty were able to use these implementation guides to build connections with their courses.

FLC adaptations during three-year implementation

The goal of the UNC KEEN FLC was to integrate and increase the use of EML-based strategies to improve learning for students. However, the FLC was intended to also improve faculty instruction with evidence-based approaches. Over the three iterations of the FLC, we adapted the curriculum topics and approach based on our observations of the needs of the participants.

We faced many challenges during the first year of the UNC KEEN FLC Program. The curriculum was initially designed to focus strictly on the outcomes and components of the KEEN Framework. Secondly, the examples that were presented to the faculty included larger implementations with multi-week activities. These activities discouraged faculty because of the time commitment and the stress of transforming a major part of their classes. Additionally, when it came time to design their KEEN Card at the end of the year, faculty still did not understand some of the pedagogical practices.

As a result of these challenges, we implemented several changes in Years 2 and 3 of the FLC. We focused on small implementations of EML immediately rather than significant course redesigns.

We also realized that both faculty and students could benefit from more frequent, small-scale EML activities throughout the semester. Therefore, in Year 3, faculty were expected to implement at least one "micromoment activity" in their courses. To support faculty in these activities, we created a set of 25 micromoment activities [16] that faculty could use immediately and easily adapt to the content at hand. Not only would these activities help faculty to be more confident in their teaching, but they would support pedagogical change and encourage more frequent implementations. Students would also have more opportunities for engaging in learning experiences to develop an entrepreneurial mindset [16].

After implementing each micromoment activity, faculty completed a reflection and submitted to an online forum on Engineering Unleashed [17] to discuss the activity, how it went, and how they can improve. They were also asked how they felt about implementing the activity. The immediate application promotes faculty to gain a greater understanding of EML and how it is implemented day to day. Faculty implementations and reflections were given feedback from the facilitators and other FLC participants. In each session, faculty discussed their courses and ideas for implementation. By engaging in dialogue, faculty were able to generate ideas and improve their previous and future implementations.

We added student motivation to the FLC curriculum because of faculty interest. While attending the Olin College Summer Institute [18], we participated in a session focused on student motivation and creating engaging learning experiences. In this session, we observed engaged students using EML applications and a direct example of why this approach is influential to student learning. We conducted the same activity for our faculty.

Many changes were also necessitated by the COVID-19 pandemic. Year 2 coincided with remote or hybrid classes and Year 3 coincided with a return to in-person classes. During this time, faculty were busier than ever with adjustments, increased workloads, and dealing with other challenges of the pandemic. The FLC curriculum devoted more time to one-on-one coaching with less content for faculty to implement.

Creating Community

One goal of any FLC is to create a true community, in which faculty help each other to develop and implement new teaching methods. The UNC KEEN FLC encouraged collaboration among participants within and across cohorts. This community was particularly valuable as faculty navigated the challenges of teaching during the pandemic. Meetings often included conversations about topics like struggling students, best teaching practices for Zoom, and workload management. Through other KEEN resources such as the online platform and the KEEN National Conference, the FLC participants could also interact with the larger KEEN community across the country To hold each other accountable, faculty members in the FLC would provide feedback to each other for their micromoment implementations and KEEN Cards.

Data Collection and Analysis

Pre-and post-surveys were developed to measure faculty self-reported knowledge of instructional practices, pedagogies, tools, and their perceptions of students' in-class experiences related to the KEEN educational outcomes. These surveys included quantitative five-point agreement (strongly disagree, disagree, neither agree or disagree, agree, strongly agree) and frequency (Never, Rarely, Sometimes, Often, Always) Likert-scale items as well as open-ended reflection [19]. The surveys

were modified over the course of three years to adapt to the changes that were made to the curriculum for the FLC as delineated in Table 2. After two iterations of the surveys, we found that faculty were understanding the strategies employed but not how they related to the KEEN outcomes. As illustrated in this table, we cross-walked strategies that we used in our implementation guides, topic areas, and other resources to the 3C's. This helped faculty to identify the implementation strategies and how they connect to the KEEN outcomes. Each cohort was statistically analyzed to draw generalizations with the qualitative results.

Table 2. Survey topics for KEEN framework

KEEN Framework 3C's	Since introducing the KEEN concepts into your classes, how often do your students... (assessed in Year 1/ Year 2)	Now that you have been a member of the FLC, how often do your students **demonstrate curiosity / build connections / create value** by... (Year 3)
Curiosity	Demonstrate constant curiosity about our changing world?	Investigating trends.
		Generating their own questions.
		Challenging assumptions.
		Investigating areas of their own choosing.
		Making predictions.
		Acting on their curiosity (researching, "googling", etc.).
	Explore alternative or contrarian views of accepted solutions.	Considering multiple points of view.
		Providing constructive criticism.
		Providing feedback to peers.
		Examining data that supports unpopular solutions.
Connections	Integrate information from many sources to gain insight.	Integrate technical topics, relating one to another.
		Connect technical concepts to a non-technical context, for example issues relating to economics, sustainability, ethics, and other societal issues.
		Create diagrams that illustrate relationships among a group of items or concepts.
	Assess and manage risk.	Use current affairs in discussions of technical solutions.
		Consider the implications of increasing scale or production.
		"What if?" With regard to connections to key people, organizations, political environments,

		regulations, competitors, processes, and design changes.
Creating Value	Identify unexpected opportunities to create value.	Determining unmet needs.
		Reframing problems as opportunities for solutions.
		Considering the users of engineering solutions.
		Offering solutions to problems through testing novel ideas to gain feedback.
		Applying existing solutions to new situations.
	Persist and learn through failure.	Learning from their setbacks and mistakes.
		Reflecting on what they should do differently.
		Identifying changes for the next iteration or future work.

Results

Tables 3 and 4 summarize faculty self-reported knowledge of KEEN EML outcomes and program benefits. A higher rating on the five-point Likert scale indicates a greater understanding of the outcome at the end of the FLC program compared to the beginning. For example, in the pre-assessment, faculty were asked about their students' curiosity and a list of nine other instructional strategies were provided. An example question is "Based on your previous experience as an instructor at Carolina, how often do your students demonstrate curiosity by investing trends." Faculty responded with the following agreement scale:

- Always (5) - Two times a week or more
- Often (4) – Once a week
- Sometimes (3) – Few times a semester
- Rarely (2) – Once a semester
- Never (1) – None

Faculty were asked to rate how frequently they had used each strategy before the program. The post-assessment included a similar question to encourage reflection on the use of each strategy after completing the program.

Major curricular changes were made to the Year 3 UNC KEEN FLC Program. The results illustrate the impact of FLC curriculum changes for each year of the program.

Table 3. The average change in post-survey compared to pre-survey for self-reported knowledge of UNC KEEN EML outcomes

3C's	KEEN Outcomes	Year 1 Δ*mean*	Year 2 Δ*mean*	Year 3 Δ*mean*
Curiosity	Demonstrate constant curiosity about our changing world	-0.1	0.2	0.39

	Explore alternative or contrarian views of accepted solutions?	0.3	0.2	0.62
Connections	Integrate information from many sources to gain insight?	0.3	0.2	0.35
	Assess and manage risk?	0	0	1.87
Creating Value	Identify unexpected opportunities to create value?	0.3	0.6	0.90
	Persist and learn through failure?	-0.2	-0.2	0.58

Table 4. The average change in post-survey compared to pre-survey for several FLC topics

	Year 1 Δ***mean***	**Year 2** Δ***mean***	**Year 3** Δ***mean***
Frequency of EML implementation in class	0.4	1.8	2.0
Familiarity with research in student motivation	0.0	1.0	1.12
Familiarity with active learning techniques	0.2	0.6	0.87

As each year the program evolved, the results showed an increase in the FLC impact, as measured by the frequency that faculty utilized these strategies and recognized the importance of motivation and active learning. However, there were many questions that showed negative growth. Although we don't have substantial evidence to support it, we observed faculty members struggled with comprehending the framework outcomes and how they relate to their courses, and there was also a mismatch between the FLC curriculum and assessment.

In the surveys, faculty also reported general teaching practices that they were incorporating into their teaching, including design group projects, student autonomy, learning objectives, and how they were writing their exam questions.

Faculty described an increased use of the following connection strategies between the pre- and post-assessment that include:

- Connecting technical concepts to a non-technical context, for example issues relating to economics, sustainability, ethics, and other societal issues. (mean=1.13)
- Using current affairs in discussions of technical solutions. (mean=1.46)
- Considering the implications of increasing scale or production (mean=2.16)
- "What if?" With regard to connections to key people, organizations, political environments, regulations, competitors, processes, and design changes. (mean=1.98)
- Considering the users of engineering solutions. (mean=1.16)
- Offering solutions to problems through testing novel ideas to gain feedback. (mean=1.25)

One faculty member how the FLC program influenced their teaching.

> *I've been trying out different active learning strategies, rather than just "here is the problem, work on it". These include concept maps, design by having students write exam questions to test a given topic, reading (skimming) research papers that include math models to solve real-world problems, and recently creating their own models. That is to say, thinking about the full picture, not just gaining knowledge, but engaging students to follow their curiosity, make connections, and understand the value beyond the classroom. And thinking about how each activity advances these ideas by formulating Learning Objectives in tandem with the activity.*

Two faculty members reported having increased engagement in their courses because of the EML implementation.

> *I noticed increased engagement in the student reviews in Spring 2022. I'm not sure the number scores were significantly higher, but there were a plethora of positive comments. People even put good comments on Rate My Professor.*

> *I've been trying out different active learning strategies, rather than just "here is the problem, work on it". These include concept maps, design by having students write exam questions to test a given topic, reading (skimming) research papers that include math models to solve real-world problems, and recently creating their own models. That is to say, thinking about the full picture, not just gaining knowledge, but engaging students to follow their curiosity, make connections, and understand the value beyond the classroom. And thinking about how each activity advances these ideas by formulating Learning Objectives in tandem with the activity.*

Discussion

As previously mentioned, in Years 1 and 2, faculty created activities with the 3C's and would only be encouraged to implement them after the FLC. With that approach, faculty would struggle to create their KEEN Card at the end of the program because there was still a lack of understanding of EML and how it should be implemented. The Year 3 FLC Cohort was expected to design and implement at least one smaller activity at an early stage of the program. The faculty were asked to describe how often they use EML in their courses. Changes made in Year 3 resulted in an increased understanding and adoption of EML. Also, in Years 2 and 3, we saw growth in "familiarity with research in student motivation," which was expected because we had added student motivation as a topic and involved students in this discussion. For "familiarity with active learning techniques" there was less change between pre-and post-survey results. UNC-Chapel Hill values active learning as a norm in their faculty instruction and most faculty who participated in the FLC were already using this extensively in their classes. Therefore, many faculty members were familiar with this topic. However, the curriculum included information about active learning and EML pedagogies together and how they relate as a type of active learning.

We changed the KEEN FLC to tailor it to the faculty's needs and focused on small implementations immediately rather than curriculum design, and the faculty began to understand EML better. Faculty were asked to describe how often they use EML in their courses. The Year 3

pre- and post-surveys included those modified behaviors and we were able to see that there was a positive change in their instruction, particularly related to connections.

After participating in the FLC, many faculty continued to engage with the UNC Faculty Development and available opportunities through the Network, including their national faculty development workshops. There were two faculty members who used their KEEN Card for course integration, and this became a foundation for a workshop at the KEEN National Conference.

Table 5. List of faculty KEEN Cards for curriculum and workshop design

FLC Member	**KEEN Card**	**KEEN Workshop**
Rachel Penton	Bringing Value Creation to a Makerspace Project through Design Dossiers [20]	Using mini-making projects in STEM classrooms to promote EML - 2023 KNC Workshop [21]
Glenn Walters	Human-Centered Design: Defining, Creating, and Testing Value [22]	MakerSpark: A design framework for high value making activities that bring engineering concepts to life (2022 KNC Session) [23]

Conclusion

Over the course of three iterations, the KEEN FLC has identified effective strategies in the FLC to create a sustainable CoP and support curricular and instructional change. Being part of a community can be a powerful tool for FLCs to improve their teaching practices and support student learning. From our experiences and results, we recommend faculty development post-COVID needs to be flexible, less rigid, and empathetic. This may entail smaller commitments and more one-on-one coaching to accommodate increased workloads. Also, minimizing asynchronous work is important to prevent additional stress and ensure sustainability. To gain a better understanding of faculty's demographics, teaching background, and institutional rank, we suggest collecting more information. To measure the sustainability of EML, we advise conducting a survey one year after the program's completion. Our assessment tools are currently preliminary and will be modified for future faculty development initiatives related to EML.

For maximum impact, instructional strategies must be easy to identify, clearly modeled, and connected to faculty's immediate use. Also, 1:1 coaching sessions and a supportive community are critical for sustaining these practices. Building a larger and ongoing CoP can help make a FLC sustainable with minimal resources needed. While these strategies are targeted to engineering students, they can easily be employed by STEM disciplines and all forms of instruction.

At UNC-Chapel Hill, the FLC has created a unique opportunity due to the liberal arts culture at an R1 institution that is starting a new engineering major and minor. The FLC has provided a foundation for faculty to engage in a variety of other CoPs through UNC's Center for Faculty Excellence and through the KEEN Network.

As higher education undergoes a transformation in how instruction is facilitated, it is more important than ever to meet faculty where they are in terms of their pedagogy and experience. The implementations of these approaches in Year 3 led to a significant increase in the adoption of EML and a boost in the effectiveness of the FLC, suggesting that these practices could have an even greater impact in the future. Finally, it is essential to recognize that faculty are overworked, and the pressure to integrate effective strategies can be stressful and overwhelming.

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