# Educating Health Science Educators: A Flexible, Asynchronous E-Learning Framework for Interprofessional Development in Teaching

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## ABSTRACT

**Background:** Health science educators often receive little formal training in teaching methods, which may limit the adoption of evidence-based strategies. Synchronous, less flexible development programs are also difficult for many interprofessional educators to access.

**Methods:** We designed Education Essentials, a modular, asynchronous curriculum to support foundational teaching skill development across health professions. Guided by growth mindset and experiential learning frameworks and informed by our needs assessment, we developed 9 modules aligned with core teaching domains.

**Results:** As of April 2025, 185 unique learners had enrolled in at least 1 of the first 6 modules, with 110 modules completed.

**Discussion:** This curriculum addresses an institutional need and supports scalable, accessible educator development across clinical, basic science, and interprofessional settings.

## BACKGROUND

Health science educators play a key role in shaping future clinicians and researchers, and despite significant teaching responsibilities, many report minimal formal training in effective teaching strategies.[1-3] Instead, most rely on self-taught methods or informal modeling to teach, which may limit adoption of evidence-based teaching and learning activities.[1,2]

Many health care organizations and academic institutions have implemented teacher development curricula, with evidence of improvement in participants' teaching knowledge, skills, attitudes, and behaviors.[3,4] However, many teacher development programs rely on synchronous, longitudinal curricula, which can be challenging for busy health science professionals to access due to clinical, research, or administrative workload and complex schedules.[3,4] Additionally, many initiatives focus on physician teachers, leading to underrepresentation of other key health and basic science professions educators, such as nurses, therapists, and scientists.[3,4] Asynchronous learning formats are well suited to meet the needs of time-constrained and diverse health science teachers by providing flexible access and allowing for self-pacing. Moreover, sound educational design aligned with adult learning theory to promote reflection, deliberate practice, and real word applications are needed.

Hence, we created a centralized, flexible, and engaging asynchronous online curriculum for interprofessional health science educators to further develop teaching skills based on individual goals and needs. In this article, we describe our process to design and build the first phase of our online professional development curriculum, Education Essentials, including early outcomes and lessons learned.

## METHODS

### General and Targeted Needs Assessments

The University of Wisconsin School of Medicine and Public Health (UWSMPH) is an academic health center within a major public research university and encompasses clinical, biomedical science, and public health programs. Across statewide campuses, clinical and basic science departments, and health professions degree programs, more than 3250 full- and part-time faculty—and numerous additional instructors and staff—engage in teaching UWSMPH learners. Historically, UWSMPH has offered various faculty development activities to support teaching improvement, including lon-

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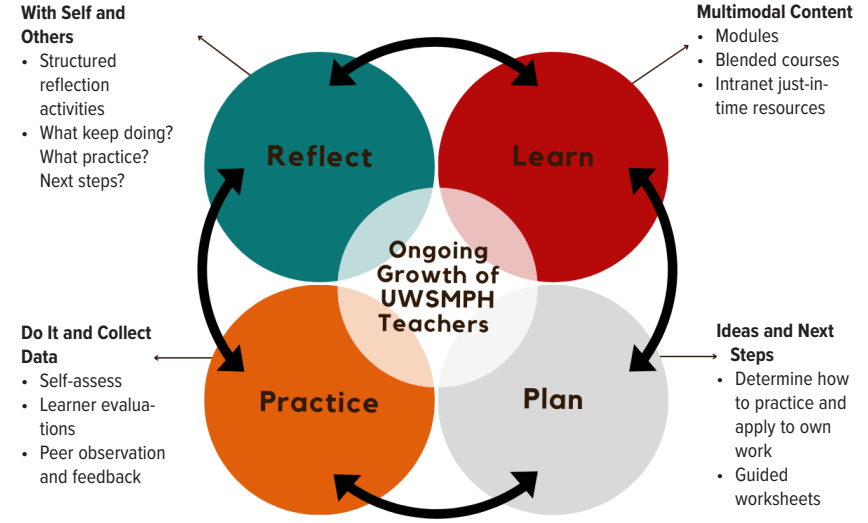
gitudinal cohort programs, department-led workshops, and grand rounds. Our general needs assessment included from review of historical and current offerings, institutional priorities, national health professions education trends, and accreditation standards.[2-6]

We conducted a targeted needs assessment from April to October 2022, by completing 29 semistructured, virtual interviews with institutional stakeholders representing a range of UWSMPH health science programs, departments, sites, and educational leadership across professions, including nursing, physician assistants, genetic counseling, public health, and physical therapy. Twenty-nine recruitment requests were sent to individuals and groups, with a 100% response rate. Interviewees were recruited via email, and we conducted 8 natural organizational group interviews (maximum of 6 participants, typically 2 or 3) and 21 individual interviews. Our interview questions included the following:

1. What do you see as the vision for what UWSMPH faculty need to develop as teachers?
2. If you were to highlight the most important goals of this faculty development program in education, what would you say they are from your standpoint? Why?
3. If you were to outline the biggest challenges of this faculty development program in education from your vantage point, what would those be? Why?
4. Who are other key stakeholders from your vantage point for us to connect with?

Qualitative analysis was conducted collaboratively by 2 authors (AS and SJ) with iterative review, code identification, discussion, and comparison of codes with emergent themes until consensus and agreement were achieved. Specific themes, barriers, opportunities, and current states were identified and grouped or collapsed from the codes. We asked interviewees for names of additional stakeholders to increase the depth of our sample and provide a broader perspective. This work is institutional educational development and quality improvement and therefore was not submitted for institutional review board review, per institutional guidelines.

**Figure 1.** Reflect-Learn-Plan-Practice Teacher Development Cycle and Module Template




Adapted from Kolb's Experiential Learning Cycle.[10]

### Curricular Framework and Content Development

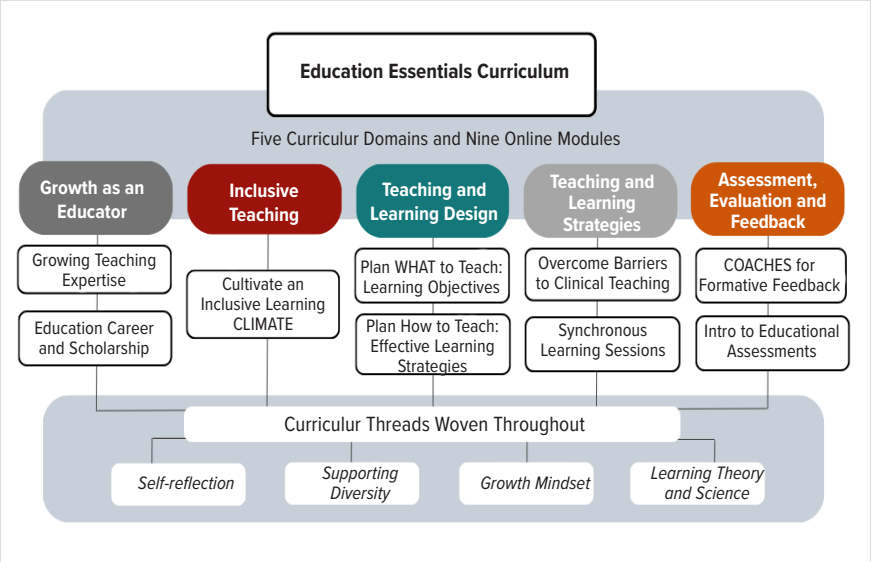
The needs assessment informed our tiered, 2-phased professional development curriculum to grow educator expertise and synergize with current programs. The first phase is Education Essentials, a curriculum on foundational knowledge and skills for interprofessional health science teachers. We adopted a growth mindset conceptual framework in our curriculum design to emphasize capacity for change and recognize that teachers bring their own experience and knowledge.[7] We also applied Kern's curricular development model for systematic design and implementation.[8] Finally, we integrated Ericsson's theory of expertise development and Kolb's experiential learning cycle.[9,10] Merging these frameworks with our institutional needs and resources, we created a curricular model, the Reflect-Learn-Plan-Practice cycle (Figure 1). This cycle provides the scaffolding for each module to promote self-reflection, targeted knowledge acquisition, application, and next steps. Additionally, the Reflect-Learn-Plan-Practice cycle provides a meta-model for longitudinal teaching expertise development.

We then outlined 5 curricular domains for Education Essentials content (Figure 2): (1) Growth as an Educator; (2) Inclusive Teaching; (3) Teaching and Learning Design; (4) Teaching and Learning Strategies; and (5) Assessment, Evaluation, and Feedback. Within domains, we determined foundational skills and knowledge for interprofessional health science teachers. Across content, we identified 4 threads to embed throughout the curriculum: learning theory and science, supporting diversity, self-reflection, and growth mindset. This high-level curricular plan was translated into learning objectives and organized into 9 asynchronous Education Essentials online modules (Figure 2). We employed a standardized module template—the Reflect-Learn-Plan-Practice cycle—for consistency in learner navigation and inclusion of effective learning methods. At a broader level, we modeled best educational practices for module development by incorporating strategies such as chunking content, balancing concept text with actions, interactive learning sequences, active learning, and reflection opportunities. Additionally, content examples and cases were created to represent diverse health science teaching roles, settings, and professions.

### Content Validation and Interprofessional Review

We sought expert feedback throughout development. The curriculum plan was presented to 3 internal education leadership groups for review and feedback at least twice to demonstrate responsiveness to feedback and subsequent development. Each module was co-developed or reviewed by at least 1 content expert from various clinical, basic science, and interprofessional disciplines. Typically, 1 interprofessional expert co-created a module with authors AS and AJ, and another 2 interprofessional faculty or staff reviewed the content as it neared completion. Two interprofessional faculty reviewers (co-authors AA and AD) from nursing and physician assistant education reviewed every module for interprofessional relevance. After final edits, up to 3 beta-testers completed each module for functionality and continuing medical education credit validation.

**Figure 2.** University of Wisconsin School of Medicine and Public Health Education Essentials Curriculum Overview




### Delivery Platform and Accessibility

Given the widespread geography of UWSMPH teachers and need for flexibility, we selected the web-based Interprofessional Continuing Education Partnership (ICEP) portal as the delivery platform, which allows anyone to create an account and access content. This platform provides asynchronous, self-paced, easily accessible modules with interprofessional continuing education (CE) credits, reminders, and continued access after completion. Modules were designed for either standalone or combination use, enabling a learner-driven approach. Modules also cross- reference each other to integrate concepts and encourage exploration of other modules.

### Outcome Measures

We tracked module enrollment and completions to date as a measure of feasibility. In addition, we captured deidentified participant learning plans to extract themes for future professional development.

## RESULTS

### Needs Assessment Themes

The needs assessment yielded 4 expansive themes to guide curricular design (Table). Within each theme, we identified specific needs, challenges, and possible approaches. For example, the theme "broad range of teaching roles, contexts, and interests" encompasses highly variable teaching roles, settings, and responsibilities both between and within stakeholder groups. The "time and energy limitations" theme highlights barriers to engagement in teacher development, including misaligned schedules with synchronous activities, lack of centralized opportunities, and competing work priorities. The theme "centralized addition to current efforts" reflects limitations of existing development opportunities and the need for a high-yield curriculum that builds on current institutional efforts with an emphasis on belonging and growth mindset. Finally, the "shared educator skills priorities" theme captures common interest in similar teaching topics across stakeholder groups. The Table connects these themes to our curriculum development approaches.

### Module Implementation and Engagement

As of April 2025, 6 of the 9 asynchronous modules were deployed (Figure 2), including Growth Mindset in Teaching, Feedback, Learning Climate, Synchronous Teaching, Planning Teaching Content, and Planning Teaching Methods. The remaining modules—Career Development for Teachers, Clinical Teaching, and Educational Assessments—are anticipated for deployment in 2025.

By April 2025, 185 unique learners had enrolled in at least 1 of the first 6 modules, with 110 module completions. Geographically, learners were primarily located within Wisconsin (N = 153, 83%) but also represented 13 US states and 8 international locations. The professions represented included mostly physicians (N=90, 49%), nurses (N = 31, 17%), and other health professionals (N = 43, 23%) including social workers, physician assistants, dentists, psychologists, students, and optometrists.

## DISCUSSION

Education Essentials, our centralized, modular, and flexible asynchronous e-learning curriculum, successfully enhanced self-assess-

ment of teaching skills among a diverse group of health science educators. This initiative addressed an institutional need for accessible, relevant teaching development and provides a scalable approach for supporting educators across a large organization.

Creating enduring, effective, and engaging online curricula requires time, resources, and a stepwise approach. A multiphase strategy—beginning with core skills and expanding over time—has allowed us to be strategic and to involve diverse expert teachers in this project. In addition, successful e-learning requires an accessible online platform and team members with expertise in online curriculum development. Promoting awareness and uptake also requires focused time, an array of approaches, and consistent messaging.

Limitations include our retrospective validation approach: while we engaged institutional leadership groups and interprofessional reviewers throughout development, earlier formal feedback on curriculum design might have strengthened the process. Additionally, the lack of a control group and reliance on self-report outcomes measures limit the interpretability of effectiveness.

**Table.** Summary of Needs Assessment Themes and Curricular Response

| Identified Needs Assessment Themes | Curricular Response |
|---|---|
| **Range of roles, contexts, and interests**<br>Faculty and instructor teaching roles and settings are highly variable with wide-ranging responsibilities both between and within stakeholder groups. Hence, an approach that fosters individualized teacher development is key. | • Designed modular, flexible curriculum relevant across disciplines, settings, and levels<br>• Adopted a "choose-your-own-adventure" format with asynchronous access<br>• Embedded high-yield teaching tools in each module for ad hoc use |
| **Time and energy limitations**<br>Barriers to engagement in teacher development are limited time, misaligned schedules with synchronous activities, lack of centralized opportunities, and competing work priorities. | • Delivered asynchronous modules through a centralized online hub<br>• Accessible at users' convenience and able to revisit at any time<br>• Aligned with institutional priorities and offered continuing education credit for participation<br>• Working on badge certification for completion of 6 out of 9 modules |
| **Centralized addition to current efforts**<br>Currently, limited centralized, uniformly accessible teaching development resources exist, especially for clinical teaching. It is important to have a high-yield curriculum that adds to current institutional efforts as well as fosters belonging and growth mindset. | • Integrated feedback from institutional leadership<br>• Content reviewed by interprofessional peers and content experts<br>• Included variety of clinical teaching examples and additional resources<br>• Focus on fostering growth mindset, reflective activities and personal development planning |
| **Shared educator skills priorities**<br>Across stakeholder groups there is high interest in similar teaching topics. The most requested topics included giving feedback, effective teaching methods, and learning climate. Foundational teaching skill priorities included effective feedback, inclusive teaching, adapting to individual learner needs, evidence-based teaching methods, clinical teaching, and educational scholarship. | • Developed 9 modules addressing prioritized topics, starting with feedback as the pilot<br>• Included evidence-based strategies across all modules |

Currently, we are working with stakeholder groups to promote the modules for individual use, facilitated group learning, and blended learning sessions with skills practice. The next step is development of Phase Two of this curriculum—modules focused on more complex teaching competencies. The Education Essentials curriculum complements existing offerings while expanding support for all UWSMPH educators as they develop teaching expertise. The curriculum is available on the UW ICEP website (https://ce.icep.wisc.edu/) by searching "Education Essentials."

## CONCLUSIONS

Education Essentials represents a scalable, interprofessional approach to building foundational teaching skills among health science educators. Early engagement demonstrates institutional demand for flexible, evidence-informed development opportunities. Ongoing expansion and evaluation will further inform how asynchronous curricula can enhance teaching expertise across diverse educational roles.

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