Society for Pediatric Anesthesia

education • research • patient safety

How to Develop an Educational Curriculum
Laura Petrini, MD, Justin L. Lockman, MD, MSEd

- An educational curriculum is an intentionally planned sequence of instruction. It defines the content (the "what"), the path ("the how"), and the different roles involved ("the who") for learning.
- Whether for a single course or a multi-year training program, the steps for curriculum development are similar; each step warrants consideration when planning a new or revised education program.

Kern's 6-Step Approach	
1. **Problem Identification / General Needs Assessment**	Identify a gap in current healthcare. How has the problem been previously addressed? What would the ideal approach look like? The difference between these responses is the general needs assessment. Gather information from available medical resources such as medical education journals, regulatory agencies (such as the ABA or ACGME), other institutions, or expert consultation.
2. **Targeted Needs Assessment**	Focus the identified problem on the planned audience and the specific learning environment to develop a targeted needs assessment. Consider the following questions: Who are the learners? What experience do they have? How does the problem impact them? How does this group learn best? Are there additional stakeholders? In the ideal setting, what resources would be needed? Are there barriers to be overcome? For this step, consider informal/formal discussions or interviews, focus groups, questionnaires, or direct observation of both your learners and other stakeholders. Obtaining needed resources may be easier if this step is done (and documented) well.
3. **Goals and Objectives**	Using the targeted needs assessment, develop broad goals for the educational activity. Like a mission statement, goals are typically non-measurable and describe a "destination" where the activity should lead. Alternatively, objectives are specific, measurable, action-oriented statements and will clearly state what will be different after completing the curriculum/activity. Consider the ABCs of objectives: Audience (Who?), Behavior (Will do what?), Condition, Degree (How well?), and Environment (In what context/time frame?).
4. **Educational Strategies**	Based on the stated goals and objectives, determine which educational methods are best suited to each. For example, knowledge-based objectives may best be addressed by distributed readings or lectures, while psychomotor skills-based objectives may best be addressed with simulation or standardized patients. Using a variety of methods for each objective will accommodate diverse learning styles while also sustaining interest and reinforcing learning. Active learning is more desirable than passive learning, especially for adult learners. Flipped classrooms (reading/lecture in advance, followed by live discussion or case-based learning) can be exceptionally useful. When feasible, consider supplementing with external/novel resources such as content experts or existing massive open online curriculum materials.
5. **Implementation**	To actualize the curriculum, identify existing resources (time, space, people, etc.) and obtain needed additional resources. Seek again to anticipate and address barriers to the new curriculum. Consider the pros and cons of a small pilot vs. full implementation. Finally, launch the curriculum.
6. **Evaluation and Feedback**	Systematic assessment of any curriculum is critical. Include both process ("Is the program being implemented as designed?") and outcome ("Were the objectives of the program achieved?") evaluation questions. Multiple formats exist, and all should include input from all stakeholders. Most importantly, future curricular changes should be based on this evaluation process, which iteratively becomes the next round of needs assessment.

1. Frye AW, Hemmer PA. Program evaluation models and related theories: AMEE Guide No. 67. Medical Teacher 2012; 34(5): e288-299.
2. de Jong P, et al. Twelve tips for integrating massive open online course content into classroom teaching. Med Teach. 2020; 42(4): 393-397
3. Thomas PA, Kern DE, Hughes MT, and Chen BY, ed. Curriculum Development for Medical Education: A Six Step Approach. 3rd ed. Baltimore, MD: Johns Hopkins University Press; 2016.
4. Tolks et al. An introduction to the inverted/flipped classroom model in education and advanced training in medicine and in the healthcare professions. GMS J Med Educ. 2016; 33(3)