AN EMPIRICAL APPROACH TO CURRICULUM DEVELOPMENT

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What one should include in the science curriculum at various stages from school through college has long been of concern to educators the world over. Whenever deemed necessary, changes in curricula have generally been brought about incrementally, based on feedback mechanisms that give information about previous ones. In India, the content is generally arrived at through consultation with scientists and science education experts. Our approach to curriculum development at the middle school level departs from this practice of incremental changes. We undertook an empirical study, which was longitudinal in nature, wherein material was developed through intensive classroom research with a cohort of students as they progressed from one grade to the next. This research investigated students' cognitive readiness at any given grade for specific concepts in science and identified their difficulties with them. It helped explore and build conceptual trajectories, often non canonical ones, that were highly effective. This is particularly important in the middle school years, when students are introduced to foundational concepts in science which form the building blocks of much that will follow in subsequent years. This exercise led to a coherent, inquiry oriented curriculum, and at the same time provided insights into effective pedagogy, another area of intense research in science education. In this talk, I will discuss the methods we adopted, the considerations that informed the content and its transaction, and, finally, the challenges encountered.