



Technology-Enhanced Formative Assessment

 Indicates a research-demonstrated benefit

Overview

A pedagogy using clickers for interactive, student-centered science instruction that engages students in extended whole-class discussion.



Type of Method

Instructional strategy





Level

Designed for: Pretty much anything, especially (but not only) for larger class sizes.



Setting

Designed for: Lecture - Large (30+ students) 

Can be adapted for: Lecture - Small (<30 students)  , Studio  ,
Recitation/Discussion Session, Lab



Coverage

Few topics with great depth, Many topics with less depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical, Modern / Quantum, Mathematical, Astronomy, Other Science



Instructor Effort

Medium



Resource Needs

Clickers / polling method, Projector



Skills





Designed for: Conceptual understanding  , Making real-world connections

Can be adapted for: Problem-solving skills, Metacognition



Research Validation

Based on research into: theories of how students learn 

Studied using: student interviews  , classroom observations  , research at multiple institutions  , peer-reviewed publication 



Compatible Methods

[Peer Instruction](#), [PhET](#), [UW Tutorials](#), [JiTT](#), [Ranking Tasks](#), [ILDs](#), [CGPS](#), [Physlets](#), [Context-Rich Problems](#), [RealTime Physics](#), [TIPERs](#), [ABP Tutorials](#), [SCALE-UP](#), [OSP](#), [SDI Labs](#), [OST Tutorials](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [LA Program](#), [CAE TPS](#), [Lecture-Tutorials](#), [Astro Ranking Tasks](#), [MBL](#), [CPU](#), [SCL](#), [CU Modern](#), [CU E&M](#), [CU QM](#), [QuLLTs](#), [Paradigms](#), [Tools for Scientific Thinking](#), [PI QM](#), [M&I](#), [Tutorials](#), [Clickers](#), [MOP](#), [Responsive Teaching](#)

 **Similar Methods**

[Peer Instruction](#), [ILDs](#), [Workbook for Introductory Physics](#), [CAE TPS](#), [PI QM](#), [Clickers](#)

 **Developer(s)**

Ian D. Beatty & William J. Gerace

 **Intro Article**

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 **Intro Article**

[Technology-enhanced formative assessment: A research-based pedagogy for teaching science with classroom response technology](#)