

The ^{Learn}Casting Toolbox

One key finding emerging from efforts in successfully using podcasting, vodcasting, screencasting, doc-casting and pencasting in K-12 classrooms is the identification of a ^{Learn}**Casting toolbox** (or strategies schema) for teachers.

The ^{Learn}**Casting toolbox** identifies distinct strategies that are both highly effective for students and developmentally appropriate for teachers. These toolbox strategies can be used by diverse teachers, at varying grade levels, and with differing content. Depending on the time investment, a teacher's skill level with technology, and the nature of the content or the teaching instance, the following strategies (somewhat ranked in order of engagement, technical difficulty, and sophistication) were shown to be effective:

- ✓ as Use/Re-use
- ✓ as Vocabulary Support
- ✓ as Content Preload/Frontload
- ✓ as Content Reload/Review
- ✓ as Context Setter
- ✓ as Visualization Tool
- ✓ as Assessment (student-created content)
- ✓ as a vehicle for Flipped Classroom Instruction

The practices in this toolbox range from passive through more constructivist instructional design, and include teacher preparation levels ranging from developmental through expert levels.

Lessons Learned from ^{Learn}Casting

The key lessons learned in various research-based efforts in K-12 settings included

- A wide variety of students benefit from ^{Learn}**Casting**, including traditionally high achieving students in advanced science classes as well as students who have struggled in traditional science classroom settings.
- The format of the content needed to vary based on the purpose, the time required to produce the content, and the technical skill level of the teacher. For example, a simple audio recording accompanied by a PDF file of lecture

notes served as a very effective tool for review in AP Chemistry. Simple audio podcasts have also proven highly effective in supporting literacy with struggling K-1 children. Whereas, in advanced biology, a brief podcast with integrated graphics and music, delivered frequently throughout the semester, provided effective reinforcement to students who might normally struggle with study skills and motivation. A vodcast works well with struggling students in basic level math or science classrooms. A screencast might make more sense when showing students how to fill out a college application, do a college search, or navigate a computer simulation. A doc-cast will enable an effective science or food lab demonstration, or personalized formative assessment. And a pencast might be just the trick for helping students that need to hear the lesson over and over again.

- Incorporation of graphics is critical for most uses.
- Tools for accessing the content (ipods, computers with internet access, etc) must be made available to students who do not have the tools available at home.
- Teachers in have also demonstrated great success with students creating digital content as a means to construct understanding of concepts and to demonstrate their learning through alternative assessment.

Examples of Achievement Benefits Associated with ^{Learn} Casting

During our many pilots, several avenues of achievement gains were evidenced, each using different tools from the ^{Learn} Casting “toolbox:”

- 10-20% gains on student assessments, based on a three-year performance baseline (Monarch HS)
- 10-12% gains by students typically underperforming in science (Boulder HS)
- Reduced failure rates and increased comprehension of difficult materials (Angevine MS)
- 10-15% improved performance on Chemistry tests (Centaurus HS)
- 90% success rates (reaching grade level in literacy) with poorly performing kindergarteners.

Pencast Explanation of [LearnCasting](#)

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