



What's Different About iLearn Math?

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We're asked that question all the time. To answer that, we should start by pointing out what's the same about iLearn and other programs.

- We cover all the content students need for supplemental math support.
- The software is adaptive (in more important ways than others however).
- We provide extensive practice with immediate and corrective feedback.
- Students must meet mastery standards.
- We provide extensive diagnostics to determine needs (only one other program does this).
- We have extensive reports that make it easy for the teacher to manage the process.

So what's different?

The most important difference is that iLearn provides a complete teaching process – including real instruction. Most programs that claim to be “instructional” don't even provide any “instruction” at all. They just provide practice. The fact that they point out that the practice includes “corrective feedback” does not change this. Correct feedback only occurs after students have answered a question, and after they have answered incorrectly.

What's far more important is how the content is taught before students ever start answering questions or solving problems. In the majority of cases, there is no instruction. Second, the instruction that is provided in iLearn Math is developed directly from the principles of explicit, systematic instruction. The details behind these terms is too broad to cover here, but an excellent overview can be found in Gersten, et. al. (2009)

The instruction in iLearn Math is not simply a recorded lecture of a teacher at a whiteboard. And it's not just text to read. It's a carefully designed (systematic) approach to teaching each concept (explicitly) in a specified order to facilitate generalization of underlying principles. And it also builds procedural fluency with lots of practice and review, after students have demonstrated an understanding of what was taught.

It's delivered in a multimedia format that specifically embodies high-quality research from cognitive psychology on multimedia instruction. This research details 10 important principles on how to present information in multimedia format for maximum effectiveness. The result is a highly engaging combination of graphics and animation, along with narration. More importantly, these presentations are designed to represent mathematical concepts in a way that communicates the underlying concepts and principles of math easily and effectively.

So why does this matter?

The bottom line is that this results in something no one else has even conceived of. **We make it much easier for students to learn.** In the process, we transform the learning process from one filled with frustration and resistance to one filled with success and motivation. This is not an empty claim. It's supported by an enormous amount of data.

Error Prevention vs. Error Correction

Errors are the enemy of success. In fact, failure is just the accumulation of too many errors. Errors are not “neutral events.” They have two very powerful negative impacts:

1. they slow down learning and
2. they frustrate, demoralize, and demotivate students.

The key to making it easier to learn is reducing the rate of errors. And, of course, this is why high-quality instruction must occur before students start practicing. This may seem trivially obvious, but actually doing it is an entirely different matter.

Other products that don’t take advantage of explicit, systematic instruction don’t seem to realize that it’s even possible to design instruction to reduce the rate of errors before they occur. These products try to correct errors, but do nothing to help the student avoid errors.

This means they wait for errors to occur, then provide what they call “corrective feedback.” However, there is little evidence that this process actually helps to “correct” errors. If it does help, it comes at a very high cost because of the two impacts of errors noted above. The unspoken problem with this approach is that once an error occurs, the damage is done. Students usually “tune out” at that point. Errors continue at a high rate, even when the “feedback” is “specific to the error.”

The iLearn Math approach is very different. It’s based on the use of multiple “error prevention” strategies built into the design of the instructional process. (These strategies are actually key principles of explicit, systematic instruction, but few who use that term seem to understand that.)

iLearn Math anticipates the kinds of errors students make, and then adaptively delivers an instructional process that prevents students from developing these specific kinds of errors. The result is that students make dramatically fewer errors as they learn the math content.

The Negative Impact of Errors on Behavior

There are several deficiencies in the other programs that have a detrimental impact. First, every other product lets students start working “practice” or “homework” problems without adequate preparation. The result is that students make errors at a very high rate. This “trial and error” approach results in far more errors than anything else.

This is counter to the principle that effective instruction should achieve a ratio of 5 to 1 for correct answers vs. errors. This is very difficult to accomplish with a trial and error approach.

The frustration students feel from this process motivates them in the wrong way to do the wrong things. A high percentage of students focus on trying to “beat the system,” by what would be called “cheating” if it occurred in class. Mimicking answers from examples given as they work a problem is a well-known “gimmick” to “beat the system” (but it’s not possible

in iLearn Math). Finding creative ways to copy answers is another. Students invest time and energy trying to find ways not to have to learn. They'd rather try just about anything to "meet the requirements" without having to learn anything. And, if a student finds a way to "beat the system," the word spreads quickly.

Unfortunately, this kind of learning experience contributes to "avoidance" behavior that is so often the target of PBIS interventions. It's a very common source of undesirable behavior in the classroom.

The result of this situation is consistently reported by those who use these other products. For example, students find a way to get through the practice, but then cannot pass the mastery test given by the computer or instructor. A high percentage of students then take the mastery test over and over again, trying to pass. Many instructors report students taking a test as many as 15-20 times before they eventually pass.

This is not evidence of real learning, it's about "meeting the requirement," no matter whether learning has occurred. There is little likelihood that students actually understand what they have "learned." What is overlooked is that students consistently have a very high rate of errors in this situation. That's why they fail. That's also the main reason why they avoid trying to learn.

This counterproductive mindset is widespread but to date, no other software provider has provided an adequate solution. If you use one of these programs, it's probably a good idea to ask the provider to give you data on the overall percent correct for students during practice and test activities. The data will probably surprise you - if you can get them.

Success by Design

The good news is that this counterproductive mindset is not inevitable. It can be changed. The real difference between iLearn Math and these other programs is that we take a completely different approach to the learning process that changes this scenario. Students become much more focused on productive activity than unproductive activity. Instructors see the powerful impact in working with students.

A key element of this approach to changing students' focus is that we do far more to make sure every student first understands the math that is taught. Then, and only then, do we allow them to start solving practice problems. We require that students complete instruction and demonstrate understanding of the concepts. They simply can't avoid this requirement because of the way the program is designed.

The good news – students find it very easy to succeed, because the entire process is designed so that every student can succeed.

So, in summary, what's different about iLearn Math? In short, it's the way we transform the learning experience. We make it easier for students to learn.

The expertise of iLearn is in designing and delivering instruction in ways that deliver on this claim.

"With iLearn Math, my students now see me as a partner in their success instead of an adversary." - VK Bussen, Instructor, Clovis Community College