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Making it Click

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A California high school test drives and evaluates six new personal response systems.

Seniors entering Ray Lehner's classroom recently at Bishop O'Dowd High School could have been excused for mistaking his desktop for a coffee table. Spread across the blotter were a collection of remote controls which looked like a typical home entertainment system gone wrong. In truth, it wasn't Lehner's TV clutter. It was, in fact, a sampling of one of the hottest trends in instructional technology.

Personal response systems, better known as "clickers," are all the rage on college and university campuses and are beginning to expand into the K-12 market. Clickers allow students and instructors to interact in a variety of interesting and innovative ways, both in classroom situations and professional development sessions.

Lehner volunteered to develop a simple activity for his economics classes to evaluate the features of systems from five different vendors. Using a 19-question unit review, we evaluated six of the seven systems in a "live fire" exercise to see how they performed. The last system, Indigo, was not yet ready to have Ray's content dropped into it. As such, we installed and tested it with the middle school math activity that the manufacturer provided. What follows are summaries of our evaluation sessions.



Personal response systems come in radio frequency and infrared versions.

eInstruction CPS and CPSrf

eInstruction is one of the old-timers in the clicker game. It has been in the market since 2000 with its Classroom Performance System (CPS) and has continued to improve its products through experience and changing market demand. For our evaluations, we looked at both the basic CPS (infrared) and the more advanced CPSrf (radio frequency). Both provided a consistent level of performance.

The basic CPS comes with the system software and a set of basic eight-key infrared clickers. They are easy to use, have large buttons, and were a hit with the students. Answering the A-D multiple choice questions on Lehner's Money and Banking review session was simple and engaging. One feature the students liked was the Practice Mode, which forces them to find the correct answer before allowing them to proceed. This tool is an excellent way of reinforcing content prior to the real assessment.

CPSrf offered all of the same features but added many of the newer bells and whistles that teachers and students want. First and foremost, it replaces the need for line-of-sight room configuration by using radio frequency remotes rather than infrared. That advantage was clear during the session. The CPSrf also features a full-function alphanumeric keypad that allows students to respond to a wider variety of assessment questions, which gives the teacher more creative control of their activity designs, as well. Finally, the RF model has a large LCD that provides students with individual feedback. It also allows the system to be used without requiring any type of classroom projection.

Mastering the software would require a little time for many teachers. With so many types of reports and tools, one could feel a little lost. Fortunately, eInstruction provides an excellent help menu with a QuickStart Guide that walks users through a step-by-step, how-to set of instructions on all of the application's features. Given that, and a quiet weekend to sit down and practice using it, CPS is an excellent example of how a well-designed clicker system can make teaching and learning both more effective and more fun.

LearningSoft Indigo Learning System

Testing any products used in instructional technology is always a challenge, particularly when you set them loose in the real world with real teachers and real students. Doing that with a product that's still in the design modification process is even tougher. That was the challenge presented by the Indigo Learning System from LearningSoft. Still in development at the time of this writing, we were given a set of six student keypads, along with a prerelease version of the software. Because it was not yet set up for use in a high school social studies class, we gave the product a separate "shake down cruise" to put it through its paces. What we found was surprisingly promising.

On the up side, the system software was easy to install. It also offered one of the cleanest and easiest systems to navigate. The displays were uncluttered and easily readable for both instructors and students. This feature is a very inviting one, and is a real benefit to the lower-tech user.

In the works but not yet functional are eBook support and graded paper return, Quick Question polling, and custom question insertion. LearningSoft also plans to include state standards-aligned assessment bundles with the software. We ran a test unit designed for 7th-grade math standards from Hawaii, and the activity ran

smoothly and easily. The data produced was useful and easily accessible through the various reports that Indigo generates.

The biggest question marks for us involved the user interface and the wi-fi access point that we were using for the evaluation. The wireless access protocol required a moderately complicated configuration that would overwhelm many teachers were they forced to perform this step themselves. There were also some connectivity issues around cross-talk with the school's existing wi-fi network.

As for the clickers, they were the most elaborate of all the keypads we looked at. This created a good/bad scenario. On the one hand, it gave respondents the widest possible array of response options. This very strength also contributed to us asking the question, "When is a feature too much of a good thing?" The learning curve on the keypad would clearly be steeper than that of the majority of the others. Also, the product design — with its hinged cover to protect the keys — seems less rugged and kid-proof than is ideal.

Indigo looks like a collection of good ideas that is heading in the right direction. With some fine tuning, it could end up being a very good product.



From left: eInstruction CPS, Qwisdom Q4, LearningSoft Indigo Learning System, TurningPoint Technologies TurningPoint, and GTCO CalComp InterWrite PRSrf personal response systems.

Page 2

GTCO CalComp InterWrite PRSrf

The trend toward using RF remotes as transceivers is clearly where the clicker market is going. Put simply, they are more reliable in terms of sending and receiving information, particularly in settings that don't offer a clear, unobstructed room. Because redesigning a remote is a lot easier (and more practical) than redesigning a room or building, the RF revolution is likely to continue. That is clearly the thinking behind GTCO CalComp's Interwrite PRSrf.

Based on the successful Interwrite PRS, the RF model picks up where the original leaves off. It performs all of the functions that PRS does, including attendance, reviews, quizzes, exams, and other assessments. A beefy database allows teachers to track and analyze student performance and to print out or display a variety of reports to give students plenty of feedback. But the biggest improvement lies in the redesigned clicker itself.

Of all the remotes we looked at, this one was the most substantial. Separate alphanumeric and true/false entry keys, along with a set of navigation keys, give the user an incredible amount of flexible response

options literally in the palms of their hands. Add a large LCD for feedback and you can see how powerful a learning tool this system can be.

The PRS software offers similar features to many of its competitors. What separates it is the amount of training and support that Interwrite provides. For quick answers, the Help menu provides just about everything you need to know. Not enough? Try the online answers link from the Examples list. Still need more? Interwrite will provide a live WebEx training session. We used this feature and found it to be a great way of easing newbie jitters prior to installation and use.

If there were any knocks against PRSrf, they were, ironically, with the remotes themselves. While the features of the unit were impressive, students found them difficult to handle. The number of tools on the clicker creates a wide profile that just doesn't fit ergonomically in the hand. Most kids ended up turning it sideways to solve the problem, but reading the LCD and using the keypad became something of a challenge. Reorienting the clicker would solve this problem.

TurningPoint (TurningPoint Technologies, LLC)

TurningPoint has numerous interesting features that we really liked. The strength of the system lies in the software, which has several clear advantages for teachers and students.

Installation was fast and relatively simple. The software walked the user through the set-up, with lots of onscreen prompts to help even the most basic computer-using educator. The package included the system software for developing, implementing, and evaluating activities and units of instruction, along with the Virtual Keypad (vPad) software.

The vPad is a big plus to the system. With this application, you can turn any traditional computer into a response keypad for TurningPoint. The various response and feedback tools are placed on the students monitor. The graphics are simple and clear, and it would be ideal for use in a setting that didn't offer good sightlines for a projected display. It also eliminates the need for individual clickers. For schools using or considering the one-to-one wireless laptop model, this would be an ideal solution.

TurningPoint is fully integrated into the Microsoft Office Suite. In simple terms, it allows educators to design activities in PowerPoint and use them directly without any conversion of other content or appearance. It also allows those activities to be designed, used, analyzed, and shared with MS Word, Excel, and Outlook. This feature was a real attraction to teachers who had already worked extensively with Office as a productivity tool.

Keypads were a mixed bag for TurningPoint, however. On the plus side, their innovative Response Card XL offers the benefit of self-paced testing. This allows students to take assessments at their own speed and to answer questions in any order they choose. And because answers can be stored in each remote, students can take the unit with them. Responses are downloaded once the student returns the unit to the instructor.

On the downside, the XL and IR remotes operate using infrared technology. In our class tests, there were issues with responses registering because of line-of-sight problems that RF devices simply didn't exhibit. Students also thought that the shape and size of the remotes were a little awkward and "flimsy." One student commented that the clicker would "probably last less than a week in my backpack."

Overall, the TurningPoint system was a solid performer, particularly in the areas of graphics, ease-of-use, and flexibility.

Qwizdom Q4

When the dust settled after two days of classroom evaluations, one thing was clear. Qwizdom was the choice of both students and instructors as "best of the bunch." In determining why, several key factors kept popping up.

First and foremost, the Q4 remote was far and away the most popular with the kids. In terms of size and shape, words like "comfortable, familiar, and easy to use" were often heard. But good ergonomics is only part of the story. Qwizdom's display was the most informative and helpful to the students. Instant feedback is the name of the game in the clicker business, and the Q4's immediate large group display of right and wrong answers was very motivating and engaging for students. The keypad is also a gem, providing a wide array of response options without appearing either cluttered or confusing. And by using RF, it avoids all of the typical line-of-sight issues that plagued earlier generations of clicker technology.

On the software side, Qwizdom gives students and teachers tons of useful information, both in real time during activities and by generating reports about student performance over the course of a unit or grading period. Seating chart, attendance, contact information, and grade-tracking options can even make the Q4 very viable as a main classroom management system. Displays and paper reports are both easy to read, and students can see their results onscreen and also through a variety of reports that illustrate their personal strengths and areas for improvement.

Teachers can analyze performance and spot trends, allowing them to fine-tune their instruction on a class-by-class basis. Qwizdom lets them see graphically if one section of a particular class is missing a specific concept. The instructor can then spend more time focusing in on that area. A good example of this is the Question/Answer Overview report, which displays each question and a percentage spread of A-D responses during an activity. By viewing this report and comparing it to other responses during a given class period, a teacher can easily see what information to focus on during the lesson.

Product	Strengths	Weaknesses	Platforms	Price
CPS and CPSrf www.einstruction.com	<ul style="list-style-type: none"> • Easy to use; students liked them • RF version features better connectivity; more keypad functions 	<ul style="list-style-type: none"> • Software learning curve a bit long for most teachers 	MAC/PC	CPS <ul style="list-style-type: none"> • \$2,495 (40-pad system) • \$1,995 (32-pad system) • \$1,495 (24-pad system) CPSrf <ul style="list-style-type: none"> • \$2,995 (32-pad system) • \$2,245 (24-pad system)
Indigo www.learningsoft.com	<ul style="list-style-type: none"> • Easy to install; clean and easy navigation • Standards-based content available for K-8 	<ul style="list-style-type: none"> • WiFi complicated to set up and use • Handheld devices may be too elaborate; long learning curve 	MAC/PC	\$3,500 (24-unit set)
InterWrite PRSrf www.gtco.com	<ul style="list-style-type: none"> • Full function software/database for testing, attendance, and analysis • Comprehensive training and support program 	<ul style="list-style-type: none"> • Students found handheld device difficult to handle 	MAC/PC	\$2,067 (32-unit Class Pack)
Qwizdom www.qwizdom.com	<ul style="list-style-type: none"> • Handheld device a hit with kids • Comprehensive software/database for tracking student performance; well-designed reports 	<ul style="list-style-type: none"> • Long learning curve • Teacher console intimidating for neo-techs 	MAC/PC	<ul style="list-style-type: none"> • \$2,993 (32-remote set) • \$2,327 (24-remote set) • \$1,680 (16-remote set)
TurningPoint www.turningtechnologies.ca	<ul style="list-style-type: none"> • Software integrated in MS Office • Compatible with other clicker brands of remotes • Computers can be turned into virtual clickers 	<ul style="list-style-type: none"> • No RF technology offered in models evaluated • Handheld durability a question mark 	PC	\$1,250 (25 IR units)

[Comparison Chart: Click for a larger view](#)

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