

Create Excitement in Education

with an

Interactive Classroom System



Reduce teaching and prep time.

Encourage interaction in the classroom.

Create excitement for learning.

What is an Interactive Classroom System?

Imagine a classroom environment that excites students to learn, encourages interaction, and drastically cuts back on teaching and prep time. For many, it may sound too good to be true, yet this environment is steadily emerging as the future of classroom learning and can quickly become a reality at any school.

Equipped with a digital projector, these systems can interactively project a myriad of information and content to the entire class. For example, the systems can display video, cable TV, Internet content, documents, a teacher's computer interactions, and even microscopic images. Conveniently, a student's classroom assignment can also be projected to the entire class directly from the student's PC.

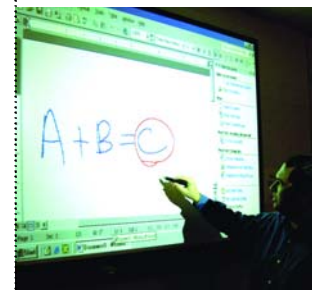
The experience becomes truly interactive with the inclusion of an interactive whiteboard, a tool which revolutionizes the chalk and whiteboards of yesterday. With so many features, just the time savings of being able to store and recall all notes, assignments, and instructions written on the interactive board makes it an invaluable tool.

Depending on a school or classroom's needs, systems can additionally be equipped with better sound capabilities, as well as cameras which could further enhance the visual experience. Computer monitoring and control software can also be included in an interactive computer classroom, giving instructors and learners better hands-on access to the information they need.

Whatever the needs of a school or classroom, all interactive classroom systems can adapt to those needs through the simple inclusion or exclusion of various features. All systems, however, begin and are designed around a single piece of equipment: a digital projector.

Digital Projectors

The development of an interactive classroom system creates a learning experience that places an emphasis on better visual learning. By enhancing the visuals of a lesson plan, communication between teachers and students improves, as does the overall enthusiasm for learning. When fully utilized, improving a



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classroom's visual learning experience raises the bar of productivity to all-time highs.

The digital projector is the centerpiece of visual learning within an interactive classroom system. Used in conjunction with a computer, a digital projector can at the very least display videos, DVD's, and computer and Internet actions in a large format in front of the class where it can best be seen. With the right additions to your system, however, projectors can display much more.

By including overhead cameras, multimedia microscopes, and/or document cameras as part of an interactive classroom system (see Pages 4-5), a digital projector can become a "window" to various aspects of teaching. Within this window, teachers can display documents and other objects – including even microscopic images – as well as give demonstrations in such subjects as science and art, without the need for students to leave their desks for a better view.

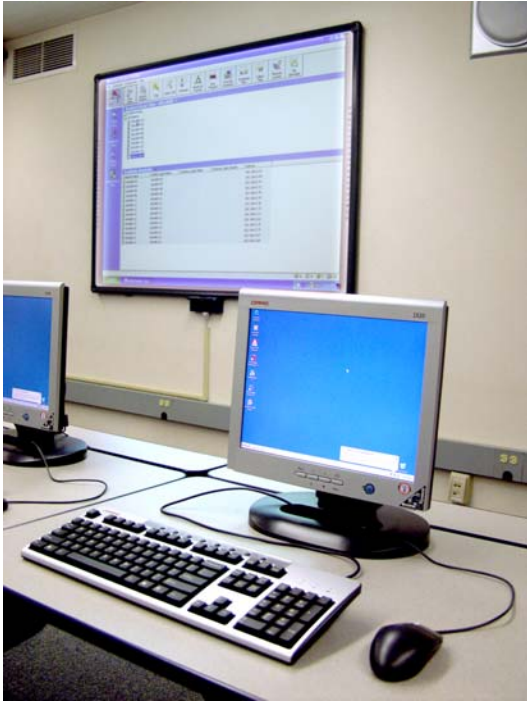
Choosing a Projector: As far as choosing the right digital projector for a particular classroom, the vast number of choices on the market today could cause confusion within even the most technically savvy schools. From choosing a reputable manufacturer to selecting a projector with the right specifications for the job at hand, the task can be daunting.

It is always important, first and foremost, to consider how the digital projector will be used, and within what conditions. In other words, will it be used to teach a computer course, to show informative DVD's, to display documents, or all of the above? Furthermore, under what lighting conditions will a classroom be using the projector, and on what size of a screen or board? Such considerations will help to determine the correct specifications and performance features a school or classroom should look for in a digital projector.

Key performance features include projection method (SVGA or



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XGA), screen resolution, and brightness. If you need a projector with better features, please contact us for recommendations.

Projection Method: Choices are SVGA and XGA. SVGA projectors must translate the native format of the image from XGA to SVGA. This translation is not pure 1-1 match, and therefore does not offer as crisp of a picture as XGA. XGA projectors do not need to translate the image into another format. We believe that SVGA is adequate for most applications.

Native Resolution: This is the capability of the projector to match the screen size of the computer. Normally, computers are set at a resolution of 800x600 pixels. Higher resolutions are 1024x768 and 1280x1024. Our recommended projectors are native at 800x600, and are capable of handling 1024x768 resolution.

Brightness: Brightness is measured in lumens. Projectors range from 700 to 2000 lumens. A brighter lamp allows you to see the screen in spite of the ambient light, enabling your audience to take notes during the presentation. We recommend 1000 lumens or higher.

With the complexity involved with choosing the correct digital projector, it is recommended that schools consult their preferred audio/visual systems consultant and distributor for assistance in this process.

Interactive Whiteboards

A disadvantage of using a digital projector for enhancement in teaching is that it takes the teacher from the front of the classroom. When using a projector for teaching, the attention of the students is clearly directed toward the screen or board while the teacher is off to the side controlling what that students see. However, this no longer must be the case.



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RDI Screen Size Design Guide

Min. Numonics Screen Size
vs. Viewing Distance

		Resolution		
		VGA (640 x 480)	SVGA (800 x 600)	XGA (1024 x 768)
Distance From Screen (In Feet)	10'	44"	44"	44"
	15'	44"	44"	62"
	20'	62"	62"	77"
	25'	62"	77"	77"
	30'	77"	77"	N.R.
	35'	77"	N.R.	N.R.
	40'	77"	N.R.	N.R.

N.R. = Not Recommended

The installation of an interactive whiteboard will not only reintroduce the teacher as the focal point of the classroom. This teaching tool has proven the ability to encourage interaction in the classroom, increase participation, and spark a renewed interest in learning.

Using an interactive whiteboard is as simple as using a chalkboard. Used in conjunction with a digital projector and a computer, an interactive whiteboard acts as a large interactive projection screen. The teacher or presenter controls the computer environment by touching the whiteboard surface with an electric multimedia pen which acts as a mouse, enabling the teacher to stay in front of the classroom while navigating through software programs.

The use of the electronic pen to freely write or draw on the whiteboard – to take notes, or highlight words and images projected onto the board – further enhances any learning environment. These scripts are automatically saved and can be printed or e-mailed for future use.

In a much simpler sense, the board can also be used as a simple projection screen when lesson plans involve the use of other multimedia tools such as VHS and DVD programs. Its uses are diverse, making it ideal for teachers – and even administrators, coaches, music instructors, etc. – of any subject. Interactive whiteboards are designed for the average computer user who seeks to benefit from the latest in interactive teaching and learning technologies.

Choosing an Interactive Whiteboard: The number of different interactive whiteboards on the market today is nowhere near as diverse as that found within the digital projector market, yet the need to choose the right product remains just as critical. The most well-known interactive whiteboards of today appear similar and perform similar functions, but a look into their specifications, software, and features indicates that their differences are many.

Before looking into this information, however, certain general qualities of the product remain vital to schools. The board must be reliable, durable, affordable, and the manufacturer must stand by their product. Keeping these needs in mind, along with those of usability and special features, the system technicians at R & D Industries, Inc. recommends the Numonics Interactive

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Multimedia Microscope
Science Lab, Estherville-Lincoln Central High School

Presentation Manager (IPM) for all education clients.

Compared to other boards which can be rendered useless with a single scratch, the IPM is virtually indestructible while maintaining a limited Lifetime Warranty. Numonics further provides educational grants to schools interested in purchasing their product, as well as provide online training for all teachers and faculty interested in using the board for a more interactive teaching experience.

Other features that make the Numonics boards stand out above the others include: a larger surface area, higher resolution, easy calibration, available “softkey” features, and ease of use. Further information about the Numonics IPM is available upon request from R & D Industries, Inc.

Interactive Classroom System Options

As stated earlier, interactive classroom systems are diverse, leaving it up to the needs of each school to determine its framework and features. Depending on a school’s teaching and learning goals, interactive systems can be a basic system with just a computer and digital projector, or a multi-functional system with the latest in available visual and audio equipment. The choice is up to each school.

The following are some hardware options available for use in today’s interactive classroom systems:

Combination VCR/DVD Player: This audio/visual tool is not just a space and time saver. It is a teaching tool which recognized both major types of audio and visual media already utilized in most classrooms.



Document Camera



Overhead Camera

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Ceiling Speakers: The installation of ceiling speakers as part of your interactive classroom will assist in the distribution of the system's audio capabilities evenly so each student can hear adequately without compromising a comfortable volume.

Document Camera: For a better way to share documented material in a classroom, the inclusion of a document camera would be the right solution. Many with high resolution and text enhancement functions, nearly any object can be projected in front of the class via a digital projector, providing a visual source for learning.

Overhead Camera: Utilizing an overhead camera, instructors can display classroom actions such as dissections and art demonstrations in front of the classroom where it can best be seen. Many of these cameras feature zoom capabilities and adjustable shooting parameters. With its use, students will no longer have to huddle around a desk hoping to see a demonstration or visual aid when such elements accompany a lesson.

Multimedia Microscope: Perfect for interactive science classrooms, these cameras fit onto the end of most microscopes and can project any microscopic image, via a display or digital projector, where it can best be seen by the class.

Computer Monitoring & Control

In today's digital society, computer literacy is a prerequisite for students and professionals alike. Schools no doubt understand this, as demonstrated by the increasing number of computers that exist in classrooms throughout the country. From basic computer courses to general studies classes which use computers as a tool, the non-traditional computer lab classroom setting is also becoming increasingly utilized, creating its own set of challenges in this difficult-to-regulate teaching environment.

In a computer lab classroom setting, teachers have a difficult time regulating, monitoring, and/or controlling the progress of each student in the lab. To check on their progress, an instructor would have to take time out of the lesson to circle the classroom, checking the progress of each and every student before going back to the lesson at hand.

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However, with the implementation of effective computer monitoring and control software called NetOp School to an interactive computer classroom, these are all problems of the past.

NetOp School is powerful classroom software with features that provide instructors with total control over a computer classroom environment. From their workstation or the interactive whiteboard at the front of the classroom, instructors can use NetOp School for all of the following:

Monitoring and Assisting Students: With NetOp School, it is possible to monitor student screens one at a time or all at once as thumbnails to gain an overview of how the class is progressing. It is possible to help individuals in difficulty via the program's dual keyboard and mouse feature, as well. This allows teachers to assist students without having to physically stand over them. This feature gives teachers the ability to lock student keyboard and mouse controls.

Giving Demonstrations: The "Give Demo" function lets teachers instruct one, several, or all students at the same time. It is possible to show the screen of the teacher or a particular student's screen to the rest of the class.

Distributing and Collecting Files: NetOp School's extensive set of features for managing and transferring files makes it very easy for teachers to distribute, organize, and file their various assignments, exams, grades, etc.

Starting Programs Remotely: NetOp School's "Run Program" feature gives teachers the power to launch programs on student PCs without moving from their own computer. This makes it possible to plan multi-application lessons and demonstrations.

Designed by training professionals, NetOp School combines unsurpassed flexibility with intuitive security features. The program requires no prior experience of PC-based training and its impressive remote-control functionality opens up exciting possibilities for interactive classrooms everywhere.

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Proper Integration

As is extremely evident by this point, interactive classroom systems are made up of a variety of parts, each of which are chosen based on the needs and goals of a particular school or classroom. Upon acquiring each component of the system, the challenge then lies in the integration of each component into a single, simple-to-use system for use by instructors and students alike.

The integration of these systems is complex, as is choosing the hardware and software to be included in these systems. It is recommended that schools consult their preferred audio/visual systems consultants and distributors, such as the experts at R & D Industries, for assistance in this process.

R & D Industries' staff remains committed to providing the hardware, software, service and correct integration that matches the needs of each client. The technicians at R & D Industries are proven veterans at providing solutions such as these to schools, as well as businesses, corporations, medical facilities, and government entities throughout Iowa.

