

## 21st Century Classroom and Meeting Space Design Considerations

### 21st Century Classrooms

21st Century classrooms can keep learners plugged in and interacting with teachers, curriculum and each other using technology such as interactive white boards, tablets, iPads, iPods, student response devices. These technologies allow teachers to keep students engaged with interactive digital media, audio and to participate as content creators rather than just be content consumers. With this technology motivated and trained educators can improve learning both inside and outside the classroom by engaging students in their native digital language.



### 21st Century Conference Rooms

In business 21st Century meeting and collaboration centers allow project teams to work together in new ways by dynamically interacting with data as a team. Interactive boards and projectors allow local teams to interact with the same data, while web and video conferencing technologies allow teams from across the world to work together effectively without travel.

### Interactive Displays and Whiteboards

Interactive displays and whiteboards are at the core of a 21st Century classroom or collaborative space. These displays allow the presentation of content from a computer, document camera or other media source. The display should be large enough and placed for all of the participants to view the content. In a larger room, content can be mirrored to additional displays or projectors to allow those participants which may be too far away to view the main display or have an obstructed view.

In addition to providing a display for content, the interactive display or white board provides the ability for the presenter, or participants who have come to the screen to interact with the content with either their finger, or a special pen. This allows the instructor to be freed from the keyboard and mouse and navigate applications or the internet by interacting with the display. With special software these displays have a whiteboard mode which allows them to act as a whiteboard with the ability to save the content, or share the whiteboard with the remote end in a video or web conference. The displays also feature add ins to Microsoft Office to allow the user to use the pen to annotate Microsoft Powerpoint. Text recognition software is also included to convert written words into computer text. These displays come in two basic categories an interactive projector, or an interactive white board with a projector.



Interactive projectors such as the Epson 455WI offer cost advantages in that they are ultrashort throw projectors which project directly on an ordinary whiteboard, wall or screen. Interaction with these devices is through using a special infrared pen. The projector tracks the location of the pen and contact with the surface to provide the interactive and whiteboard features.

Electronic Interactive Whiteboards such as the Panasonic Panaboard Elite UB-T880 provide similar features to the interactive projectors however in addition to the pen being used for interactivity the board serves as a touch screen allowing the finger to be used as an input.

Multi-touch technology allow these devices to support up to 3 points of contact allowing gestures for manipulating objects, or multiple participants interacting with the board providing additional interactivity that is not supported by an Interactive projector alone.



### Presenters Station

Depending on the room layout, a presenters station may be an area at the end of a conference table, a credenza, a stationary lectern, or a lectern on wheels. The presenters station house the tools and equipment to provide content to the class or meeting. Common components that are included in the Presenter Station Include:



**Dedicated PC**, this insures that the room is always ready for presentation and reduces the need to install software drivers for any additional equipment such as the whiteboard or document camera. A wireless keyboard and mouse allow the presenter freedom to sit at a conference table or for participants to utilize the PC from there location.

**Document cameras** allows documents or even 3d objects to be projected on the screen to allow viewing by all participants.

**Remote slide advancer** allows 2 button control of power points from around the room.

**Bluray or DVD Player** allows sharing High Definition Movies and additional content on the display.

**Connections for a laptop and additional video devices** allow flexibility in the equipment that can be used in the room. While many presenters will be comfortable using a dedicated PC, there are times when it is appropriate for the presenter to use their own laptop. Providing additional Computer, HDMI, and composite inputs will allow the flexibility of connecting virtually any additional device such as specialized media players, iPads or video cameras.



### Participant Response Devices

Participants can be further engaged in classes or meetings with interactive response or polling devices. When combined with software, these devices allow the presenter to pose a question on the screen for the participants to respond with multiple choice or a short answer, participants input their responses which can be tabulated on the presenters computer and/or displayed on the screen. This can be used for voting, or assessment. Response device can include dedicated units such as the RM Education iRespond series of devices or can be a combination of computer software and iOS app using iPod touches or iPads as.



### Audio

Clearly hearing the presenter above any background is key to learning from the content that is being presented. Properly designed audio systems allow each participant to hear the presenter as well as any media content that is being presented above any background noise or other interruptions. Audio reinforcement systems also help to protect presenters against voice strain and fatigue caused by having to project over background noise or the perception the presenter is shouting. In large rooms, hand held or table mounted participant microphones insure that participants are heard by each other. In distance learning and video conferencing solutions additional audio systems are needed to all participants to be heard at the remote end. High end video conferencing audio systems also allow the camera to follow the sound both through push to talk and voice activated technology.



### Conferencing

Extending a meeting or class to remote participants can expand educational opportunities and reduce cost. Conference solutions can include high end High Definition TelePresence Immersion systems which are designed to extend a conference room to the remote site, and provide the feeling that all participants are in the same room. High Definition Video Conferencing end points allow high quality hardware based video conferencing with multiple participants allowing HD video and Presentation Content to be delivered locally and to the remote end. Web conferencing solutions utilize cameras and audio attached to the presenters computer to send and receive meeting content and video to other PC based participants on the internet.



### Lecture Capture and Meeting Recording

Appliance and software based tools can be used to allow the recording of video, audio and presentation content in a media file which can be placed on line for later viewing, archived or used in a podcast solution.

### Room Control

21st Century spaces integrate a variety of diverse electronic equipment. The successful use of this equipment is based on the presenters ability to easily control all of the equipment without the operation of the equipment distracting from the class or meeting. Room Control and Management Systems centralize the control of all of the presenters tools in an easy to understand control panel or touch screen interface.



### Cabling and Installation

The integration of a variety of diverse electronic equipment involves correctly connecting each of the devices with the proper cabling suited to the distance between the equipment and the aesthetics of the room. Points where users may need to connect additional devices such as laptops should be easily accessible in the proper locations and neatly concealed. Proper design allows the technology to feel as if it is part of the room.

### Professional Development

Technology is a tool used to facilitate collaboration and learning in a 21st Century environment. The value added by the technology is directly related to the presenters ability to integrate the technology into the collaboration and learning process. This is accomplished by providing training and professional development both on the use of the equipment as well as integration into the learning and collaborative environment.

### Infrastructure

21st Century meeting places require the proper network infrastructure in order to provide access to the content and resources required for collaboration and education. Properly designed networks, wireless and unified communication networks are key components to the success of these classrooms and meeting spaces.



### About Promedia

Promedia Technology Services, Inc., founded in 1992 and located in Little Falls, NJ, is a network solutions provider whose core business is ensuring its clients' productivity and efficiency through the appropriate use of network technologies. Promedia understands how these intricate systems can become costly, hard to manage, and hard to maintain. These challenges are answered by developing accurate ROI's for technology investments and delivering monitoring and managed service offerings to minimize the burden on the client.

For more information on our 21st Century Collaboration Solutions or any of our products and services, you may visit our website at [www.promedianj.com](http://www.promedianj.com) or call 973-253-7600