

Multimedia Augments Classroom Learning

Messiah College's Boyer Hall supports community and society.

May 2005

Article by Jim Stokes

Messiah College's Boyer Hall, home to the Boyer Center, in Grantham PA, epitomizes the mission of building a quality school supporting community and society. Ernie Boyer, namesake of the new building and a distinguished alumnus, affirmed his vision of nurturing intellect, character and faith within and beyond this college.

Specific to the mission, Boyer Hall is the newest and largest building on campus. The 98,000-square-foot, four-floor academic facility contains 23 multimedia classrooms, four interview suites, two observation rooms, a 70-seat classroom and three seminar conference rooms. Furthermore, Boyer Hall allows Messiah College to connect even more extensively with the surrounding community, particularly through the Parmer Cinema, the building's new premier surround-sound film and digital media projection facility, comparable to a film studio screening venue. Students learn all facets of cinema in a four-year degree program.

Boyer Hall houses the college's school of education and social sciences, school of humanities, psychology faculty and related classrooms, as well as the aforementioned Boyer Center. The audiovisual systems designed for the new building play a major role in augmenting the school's educational mission. The design to budget for the educational technology systems was \$1 million.



70-seat tiered classroom.



The Parmer Cinema can function as a classroom as well as a screening room.

We'll cover the building's multimedia classrooms, 70-seat classroom, Parmer Cinema, interview and observation rooms used especially by the psychology department, and seminar and conference rooms.

Project Evolution

After a large campaign drive, Messiah College retained Baltimore MD-based architectural firm Ayers Saint Gross to plan Boyer Hall. In keeping with the goal of bringing the latest technology into the building, Dennis Lynch of Ayers Saint Gross brought in higher education technology design specialists CTDG/Convergent Technologies Design Group, Baltimore. Thus, CTDG handled all aspects of project management for technology systems design including audiovisual systems, telecommunications cabling systems, and acoustics, noise and vibration.

“We wanted to give Boyer Hall a solid foundation for developing a future-proof solution that would grow with the needs of the school, its faculty and students,” said Paul Corraire, principal designer for audiovisual and telecommunications cabling systems at CTDG. “We helped Messiah College to identify and implement new and emerging technologies that would enhance teaching and learning not only for now, [but] for years to come.”

Regarding the Crestron access choice, he noted “the IP addressability and the kind of convergence of this remote-control setup, and the diagnosing and monitoring and automation effectiveness over the LAN [local area network] has really set a new standard there for the folks at Messiah.”

Few ‘Smart’ Classrooms

Although the school had only a few “smart” classrooms and lecture halls, the new Boyer Hall would take Messiah College from a technology-shy school that used mostly overhead projectors and videos to advanced AV technology that the instructors would grow to love. Furthermore, media services became enamored with Crestron's RoomView, which saves them time in solving classroom equipment problems.

“CTDG were the folks who steered us to Crestron,” declared Bob Weaver, the college's assistant director of media services. “RoomView allows me to do service calls from my desk. Before we had this system, I probably left my office at least a dozen times a day. It has cut service calls to less than half. We're actually able to see what the instructor sees in the classroom. And we can allow them to push the buttons. So we're actually training them because we have a phone in each classroom by the instructor's desk. They can call in and we can talk them through it. If they're confused and in a big hurry, we can do it for them.” He noted that his boss, IT director Rick Dent, was responsible for adding a “help” line in the classroom, by dialing #2222.

Regarding the touchpanels themselves, Weaver pointed out “there are no hard buttons. It's all software changes. When you re-do something, you don't have to have a new panel engraved.”

Pro-Com Systems' Philadelphia office was the dealer/installer. Mike Morgan, who has since left the company, was project manager for most of the install. Russell Lynch, Pro-

Com's quality assurance manager, reported that they subcontracted the actual writing of the Crestron code to Dave Johnsrud of DuraCom, Brooklyn NY, who did all of the programming including RoomView.

Remote access was a boon to integrator Pro-Com as well. Lynch pointed out that Messiah College "allowed us access into their firewall from our Philadelphia office, which is about a 220-mile round trip to the college. And when they had questions or training issues, they let us in and we had access to web pages and RoomView to see exactly what was going on to solve problems early. We also had a few bugs that were discovered in the system that were solved completely over the internet and by phone."

Multimedia Classrooms

Each of the 23 multimedia classrooms is equipped with a stationary teacher's station, which includes a Samsung document camera, Panasonic DVD/CD and VCR players, a Crestron TV tuner and a computer. A ceiling-mounted Panasonic LCD projector provides images shown on a large screen. A Biamp mixer/amplifier drives four Tannoy speakers located throughout the room. VGA, NTSC and audio signals are Extron switched/routed. Then there are the classroom accoutrements of telephone and blackboards. AV equipment is accessed via a Crestron CT-1000 touchpanel.

"We fasten the teacher's station to the floor," explained Weaver, "because when people move them around they cut off the wires. So we don't want roll-around carts. And we do not give out any hand remotes. People change settings and they leave with the remote. With the Crestron, when people shut down the system, it goes back to default. And you start at square one."

Document camera acceptance took some time with the faculty. "At first, we couldn't get anybody to use a document camera," continued Weaver. "But we made a decision in this new building that we put in document cameras. And they're going to have to live with them. Now they want them everywhere! In fact, they want them in all the other buildings that we didn't have them in."

Messiah College has a strong commitment to disability services. At the start of each semester, the campus disabilities department sends an e-mail to media services stating which classrooms disabled students will be taking classes in. "We turn on the (TecNec) closed-caption decoder boxes on the tuners for those rooms," said Weaver. "At the end of the term, we turn the decoders back off."

Large Classroom

The 70-seat multipurpose classroom is about twice the size of a typical Boyer Hall classroom. Designed for large groups, Weaver explained that "it's a little fancier classroom used for lectures, guest speakers and chapel services." The half-moon-shaped space has tiered seating with laptop connections for the students. In addition to the teacher's station equipment found in the multimedia classrooms, this room has an Electro-Voice podium mic, Sennheiser wireless mic and a Williams assisted listening system. There are eight Tannoy ceiling speakers for the speech-reinforcement system and a separate program sound system with Atlas Sound left and right screen speakers.

In addition, the room has a high-brightness Panasonic LCD projector to accommodate the larger attendance. For showings, the room can be darkened completely via blackout

shades, which are controlled from the podium.

Weaver noted that the room's TPS-3000LA Isys six-inch screen touchpanel allows the instructor to preview. "Let's say you have the document camera showing on the room screen. Then you can cue up a tape on the VCR. All you have to do is press the touchpanel's upper right hand corner and change from the preview screen to the big room screen." Conveniently, there's a Sony eight-inch preview monitor in the room's AV closet, which is set up for an AV tech videotaping a lecture or other event.

Parmer Cinema

Parmer Cinema can function as a classroom as well as a screening room. Equipment access at the instructor's podium is via a TPS-3000LA touchpanel. Because this auditorium is much larger than the other classrooms, podium mics and a wireless mic are available as well as wall mic inputs to accommodate events such as panel discussions. The room seats 134, which includes wheelchair seating for five. Also available are an assisted-listening system and a closed-caption decoder. Although similar classroom AV equipment is accessible, we'll concentrate on the cinema aspects of the room in detail. Readers can gain additional insight into the related film and digital media degree program in an accompanying sidebar.

Designed in consultation with Boston Light and Sound (BL&S), one of the most respected industry cinema design teams, Parmer Cinema is considered one of the premier cinemas on the East Coast and is available for public showings as well. In addition, BL&S maintains the cinema equipment in the projection booth. The screening facility features Dolby Digital 5.1 Surround Sound. Parmer's Surround Sound has 14 speakers: two EAW left and right rear, four EAWs along each side wall, one Electro-Voice subwoofer and Electro-Voice LCR screen speakers. On the picture side, there's a ceiling-mounted high-brightness LCD projector for video and digital media. The projection booth has two Kinoton 16/35mm film projectors. Theatrical feature film formats such as Cinemascope, 1.85mm flat and 1.66mm wide screen are accommodated. Related AV equipment is rack mounted.

The auditorium is acoustically tuned and features continental seating with aisles on the sides of the room. All seats are directly in front of the screen and the slope of seating and distance between rows is set up so the view from each seat is unobstructed.

Cinema Sound

"This is clearly the most complex, comprehensive set up in a college I've ever seen," declared Russell Lynch, who set up the cinema audio in two overnight sessions using SmaartLive 5. "I could have quiet and not be interrupted because there were so many systems and so many adjustments to be made," he stated. The film projectors' Dolby was set up by BL&S, while Lynch set up the Peavey processing.

The cinema speakers are all fed by a Peavey X Frame 88 processor, which intercepts feeds from both the Dolby processor and the Lexicon processor. Outputs of the film projectors go through the Dolby. Then the Lexicon accepts all source material other than the projectors. That includes the TV tuner, DVD and VCR. The X Frame 88 has a 16x16 router that does all the presets for either the Dolby or the Lexicon processor, in addition to parametric EQ and all the audio setup for both the separate speech and program speakers. The two Peavey MM8802 breakout boxes provide additional ins/outs for the Matrix

Mixer: 22 inputs and 17 outputs in all.

Interview, Observation Rooms

The four interview and two observation rooms allow psychology students to participate in practice counseling/interviewing connected with classes, to observe children at play or to work with faculty members on research projects. Principal AV equipment in an interview room consists of a ceiling-mounted Panasonic dome CCTV camera and a ceiling-hung Audio-Technica unidirectional microphone. Other equipment used, variously, for interview/observation rooms and instruction includes TV monitors and VCRs for recording/playback of sessions as well as a podium mic, combo CD/cassette recorder and monitor amplifiers. In addition, a camera controller, video switcher and matrix switcher are in the signal chain.

Conference, Seminar Rooms

The conference and seminar rooms are similarly equipped with LCD projection, screen, VCR, laptop connection and a closed caption decoder. The cozy 16-seat conference room has a Polycom VSX-7000 system. Weaver said that the college's phone technicians installed the Polycom. "The conference room is for distance learning or for use by a specific department."

It's rather obvious that Weaver is happy with the Boyer Hall project. It's adaptable for the future in that the infrastructure will enable Messiah College to easily accommodate additions and modifications. "We went through training [with Pro-Com] the first few days we had the building open," he related. "I thought it was going to be a nightmare and it turned out to be a dream! We went from pushing buttons [on equipment] to using remotes."

Film And Digital Media Program

Messiah College offers a unique way of studying film and digital media in a four-year degree program. Their approach is distinctly Christian and very personal. The program is modeled on the workshop approach used in Europe, rather than the factory approach used at many American film schools. The program features award-winning faculty and stellar facilities. Chris Simmons directs the program and teaches most aesthetics, history and theory courses. Ann Young is the screenwriting professor. Joonhee Park teaches film and digital media production classes. Dr. Crystal Downing of the English department also offers courses in the program dealing with filmic adaptations of literary and dramatic works.

Related, the student-run film society, Lost Films, shows about 80 films per year in Boyer Hall's Parmer Cinema, which allows students to be involved in every aspect of film, including projection, selling tickets and running concessions. By doing this, students learn not just production or aesthetics, but also business and organizational skills important to succeeding in the gritty world of media production.

Students can take film and digital media courses at Temple University in Philadelphia through its highly acclaimed department of film and media arts. All film students are required to complete six to eight credits of internships working with film and digital media in a film industry setting. One way is in a Hollywood major film studio such as Sony, Warner Brothers, Universal or Paramount, through Messiah's relationship with Emerson College, Los Angeles.

Large Classroom

2 Atlas AS661 L/R in-wall program speakers
1 Chief CMA-100 ceiling mount w/extension column
1 Chief RPA-6500 LCD projector mount
1 Chief RSH-4 DVD/CD/laser disc rackmount
2 Chief RSH-4 S-VHS VCR rackmounts
1 Crestron PRO 2 Control system w/C2ENET-1 Ethernet card
1 Crestron CNMK PC keyboard/mouse controller
1 Crestron CNRFGWA RF gateway
1 Crestron ST-TUNE 125-channel TV tuner
1 Crestron TPS-3000LA Isys 6" color touchpanel
1 Crown CP 660 6-channel power amp
1 Electro-Voice PolarChoice 18 podium mic
1 Extron 60-359-BY Matrix 50 Series; 84VA NTSC/stereo audio follow matrix
1 Extron MBC VGA/XGA HR w/audio universal computer interface
1 Extron RGB-203xi universal computer interface
1 Gentner PSR1212 DSP matrix mixer signal processor
2 JBL Control 19CS subwoofers
1 Middle Atlantic Slim 5-43 vertical equipment rack
2 Niles AC-3 power controllers
2 Panasonic AG-1340 Quasi S-VHS VCRs
2 Polk RC85i LS/RS Speaker18
1 Panasonic PT-L6510UL high-brightness LCD projector w/medium-throw lens
1 Pioneer DLV-919 DVD/CD/laser disc
1 QSC CX-302v power amp
1 Samson PB-9 equipment rack power sequencer
1 Samsung SDP-900 document camera
1 Sennheiser EW122 wireless lapel mic system
1 Sony MB-520 rackmount 8" diag. video preview monitor
1 Sony PVM-8042 8" diag. video preview monitor
8 Tannoy CMS50-30 ceiling speakerx w/Tx
1 TecNec PCD-85 CC closed caption decoder w/power supply
2 Whirlwind custom I/O plates
1 Williams PPA-VPE ALS assisted-listening system w/ANT005 antenna, RPK-004 rackmount, 6 PRA-R7 receivers

Parmer Theater

1 Anchor AN-100 powered audio monitor speaker
1 Chief CMA-100 ceiling mount w/extension column
1 Chief RPA-6500 LCD projector mount
1 Chief RSH-4 laser disc rackmount
2 Chief RSH-4 rackmounts
1 Crestron PRO 2 Control system w/C2ENET-1 Ethernet card
2 Crestron CNXCOM-2 serial interface card
1 Crestron CNRFGWA RF gateway
1 Crestron ST-TUNE 125-channel TV tuner
1 Crestron ST-VC volume controller

1 Crestron TPS-3000L 6" color touch panel
 1 Denon DN-T625 CD/cassette recorder
 1 Dolby CP650D cinema audio processor
 10 EAW UB22i surround speakers
 3 Electro-Voice Variplex B screen speakers
 1 Electro-Voice PolarChoice 18 podium mic
 1 Electro-Voice TL880D subwoofer
 1 Extron Matrix 50 Series 128VA NTSC/Stereo audio follow matrix
 1 Extron MBC VGA/XGA HR universal computer interface w/audio
 1 Extron RGB-203xi universal computer interface
 1 Furman PL-8 power sequencer
 6 ISCO PC-CINE adapters for spherical-type lenses
 6 Kinoton 35mm 1.85 aperture plates
 2 Kinoton 1.33 16mm combined anamorphic 80mm lenses
 2 Kinoton FP38E film projectors w/lens adapter upgrades from
 70.6mm-101.6mm
 1 Lexicon DC-2 5.1 THX Dolby surround processor
 1 Media Matrix by Peavey MM8802 break out box
 1 Media Matrix by Peavey MM8802-M break out box
 1 Media Matrix by Peavey X88 audio signal processor
 2 Middle Atlantic ERK-4425 vertical equipment racks w/accessories
 1 Middle Atlantic ERK-4425 vertical equipment rack
 1 Panasonic PT-L6500UL high-brightness LCD projector
 w/medium-throw lens
 2 Panasonic AG-1340 quasi S-VHS VCRs
 1 Pioneer DLV-919 DVD/CD/laser disc
 1 QSC DCA 1222 sub power amp
 1 QSC DCA 1622 PA speaker power amp
 1 QSC OT600 PA speaker 70V line transformer
 3 QSC DCA 1622 screen power amps
 2 Samson PB-9 power sequencers
 1 Samsung SDP-900 document camera
 1 Sanyo DVD-7000 DVD player w/5.1 audio output
 6 Schneider anamorphic 80mm lenses: 1.85 flat 35mm, 1.66 wide
 screen 35mm, Cinemascope 16mm
 4 Schneider LS lens shifter for anamorphic-type lenses
 2 Schneider Cinemascope 35mm combined anamorphic 80mm lenses
 1 Sennheiser EW122 wireless mic system
 1 Sony PVM-8041 8" video preview monitor w/rackmount
 9 Tannoy CMS50-30 ceiling speakers
 1 TecNec PCD-85 closed-caption decoder
 1 Videotek ADA16 1x6 audio DA
 2 Whirlwind custom I/O plates
 1 Williams PPA-VPE ALS assisted-listening system w/1 ANT005
 antenna, rackmount, 6 PRA-R7 ALS receivers

Multimedia Classrooms (23)

23 Biamp CMA-30 6-input mic/line mixer/amps
 1 Crestron remote-control system
 23 Chief CMA-100 ceiling mounts w/extension column

23 Chief RPA-730 LCD projector mounts
 23 Chief RSH-4 Rack Mount
 23 Crestron AV2 control systems
 23 Crestron C2ENET-1
 23 Crestron CT-1000 3.8" color touchpanels
 23 Crestron ST-TUNE TV tuners
 23 Crestron ST-VC volume controllers
 23 Crestron CT/LC-FPW white engraved faceplates
 23 Crestron ST-CNB 125 Channel TV tuner dist. blocks
 23 Crestron ST-RMK rack mount kits
 46 Crestron IRP2 IR probes
 23 Extron Matrix 50 Series; 84VA8x4 NTSC/stereo audio follow matrix
 23 Extron P/2 DA2+ 12' monitor breakout cables
 23 Extron RGB-203xi 2x1 VGA auto-switches w/rack mount
 23 Middle Atlantic RSH-4A DVD, audio CD player rack kits
 46 Niles AC-3 power controllers
 23 Panasonic AG-1340 Quasi S-VHS VCRs
 23 Panasonic PT-L720XU LCD projectors
 23 Panasonic RV-31K DVD players
 23 RDL STD-10K audio combiners
 23 Samsung SDP-900 digital single-chip document cameras
 92 Tannoy CMS50-30 6.5" ceiling-hung speakers
 23 TecNec PCD-85 closed caption decoders w/PWT-300 power supply
 46 Whirlwind custom 2RU, 7-gang I/O plates

Interview, Observations Rooms

1 Altronix ALTV248-300 high current ceiling-mounted dome color camera P/S
 5 Audio-Technica AT847RW Ceiling-hung uni-directional mics
 2 Bretford TVWY27-BK wall mounts for 25" monitor
 5 Chief RSH-4 rackmounts for S-VHS VCRs
 1 Crown CP 660 6-channel power amp
 1 Denon DN-T625 combo CD/cassette recorder
 2 Extron Matrix 50 Series; 8x8SA stereo audio matrix switchers
 8 JBL Control 24CT 4" full-range ceiling speakers
 2 Marshall Furniture M-RE12 28"H equipment racks
 2 Panasonic CT-2789VY 25" stereo TV Monitors
 2 Panasonic WV-CU360C CCTV system controllers
 1 Panasonic WJ-SX150 video switcher
 5 Panasonic AG-1340 Quasi S-VHS VCRs
 5 Panasonic WV-CS854A ceiling-mounted color CCTV dome cameras
 1 RDL STD-10K audio combiner
 1 RDL ST-DA3 audio distribution amp
 7 RDL STM-1 mic to line converters w/power supply
 2 Shure MX418D/C Slimline Cardioid gooseneck podium mics
 1 TOA BG-115 10W mono amp
 1 Whirlwind custom plate 7-channel 1RU volume volume controller

Seminar, Conference Rooms

- 4 Chief CMA-100 LCD projector ceiling mounts w/extension column
- 4 Chief RPA-730 LCD projector mounts
- 4 Chief RSH-4 Quasi S-VHS VCR rackmounts
- 1 Crestron CP2E control system
- 1 Crestron ST-VC volume controller
- 2 Crestron CNX-BN12B 12-button keypads
- 1 Middle Atlantic D2 2RU drawer
- 4 Panasonic AG-1340 Quasi S-VHS VCRs
- 4 Panasonic PT-L720XU LCD video/data projectors
- 4 TecNec PCD-85 closed caption decoders w/power Supply
- 8 Whirlwind 2-gang custom AV plates

Convergent Technologies Design Group

Convergent Technologies Design Group (CTDG), headquartered in Baltimore MD, provides technology design consulting services to support technology initiatives within educational institutions and districts across the country. Design services include audiovisual systems, telecommunications cabling systems, and acoustics, noise and vibration control. The firm also has offices in Phoenix AZ and Buffalo NY.

With more than 80% of their work coming from higher education clients, consultants at CTDG draw from years of “hands on” project management/engineering experience when assisting faculty, students, technical staff and administrators in planning technology design options and performance specifications. The firm continually maintains the goal to deliver quality technology design solutions that complement the institutional objectives and the pedagogical teaching mission.

Messiah College

Messiah College, Grantham PA, near the state capital of Harrisburg, was established in 1909 as a school of the Brethren in Christ Church. The college began granting four-year BA degrees in the mid 1950s, and since 1963, has been accredited by the Middle States Association of Colleges and Secondary Schools. Academic programs in engineering, dietetics, nursing, athletic training, music, social work and education are accredited by the appropriate professional associations.

There are about 140 full-time faculty members for more than 2800 full-time students. Messiah awards BA and BS degrees in an academic program that includes 44 majors, more than 50 minors and secondary education certificates in 10 academic disciplines. The college’s program is administered through 13 academic departments. Off-campus study opportunities abound through cooperative arrangements with Brethren Colleges Abroad, Daystar University, Jerusalem University College, AuSable Institute of Environmental Studies, Oregon Extension and programs offered by the Coalition of Christian Colleges and Universities.

Credits

- Ayers Saint Gross, Baltimore MD, architects, Dennis Lynch
- CTDG/Convergence Technologies Design Group, Baltimore, system design, Paul Corrairie, principal

- DuraCom, Brooklyn NY, Crestron programming, Dave Johnsrud
- Messiah College IT department personnel: Rick Dent, director; Bob Weaver, assistant director of media services; Rick Bentz, media services assistant; Chris Culbert, video telephone technician; Dave Germeyer, classroom support/CATV; Berte Thompson, manager, student computer services; Les Weiland, computer technician
- Pro-Com Systems' Philadelphia office, dealer/installer: Mike Morgan, since departed from Pro-Com, who was project manager during most of the install; Russell Lynch, quality assurance manager.