

Ryerson's Mixed Reality New Media Labs Prove To Be A More Cost Effective Teaching And Delivery Alternative To Traditional Lab And Classroom Models

From: Office of Program Director, Operations and Technology, Rogers Communications Centre

August 1, 2009 – What began as an idea to accommodate ever evolving new media curriculum under severe space pressures has led to a more functional and cost effective Mixed Reality Lab cluster in Ryerson's Rogers Communications Centre (RCC). The cluster of rooms was established to enhance both Scholarly, Research and Creative (SRC) Enhancement programs and to meet the day-to-day teaching needs associated with undergraduate and graduate program requirements. The RCC Mixed Reality labs have been designed to take advantage of past investments including the buildings 10 gig wiring infrastructure, the FCAD streaming media server and the FCAD shared audio sound effects server. The idea built upon the success of the Virtual Shared Audio Lab established by the RCC in 2005. The cluster utilizes the side-by-side rooms of RCC-357 (Hybrid Computing Lab), RCC-359a (Mixed Reality Extension Lab), RCC-359b (Visual Computing Lab) and RCC-361 (Electronic Field Production and Practice Lab). These 24 hour accessible labs are located in the south east quadrant of the third floor of the Rogers Communications Centre. The cluster also integrates the second floor Advanced Media Lab (Room RCC-224) and will extend across campus to other labs and classrooms operated by Ryerson's Faculty of Communication and Design.



The University wide cluster will roll-out in its entirety over the next few years via an interconnecting network of Fiber Optic cables that will interconnect centralized facilities to meet emerging research, classroom, community needs as well as teaching and learning requirements across the division. The Mixed Reality Production Cluster of rooms in the RCC represents both the start and “the mothership” of the production cluster. While specified in terms of function the RCC third floor labs have been designed to be “multipurpose” in nature and employ highly mobile technology that different classroom presentation technology than employed in University classrooms and Ryerson's first “smart” classroom that integrates workstation based software management and an interactive white board.

One of the keys to servicing the cluster is a centralized system that ensures technology is scheduled and in place to service varying classroom needs. The service system also places responsibility on the classroom instructor to ensure that the labs are returned to a “home” position at the end of each session. To assist faculty the furniture in the flexible labs are on wheels with floor-plates scattered throughout the rooms that provide wired Ethernet and AC power. This allows faculty to design seating in the lab to best meet their needs.

The cluster is overseen by the RCC's Lead New Media and the rooms are directly serviced by the Centre's New Media Lab Assistant. The Assistant pulls from a specially designed inventory of equipment that allows for quick technological delivery and set-up. All of the delivered inventory has been purchased because of its simplicity and is managed during the classroom session by the instructor. The state of the classrooms are monitored at the end of each session where any problems are immediately dealt with via the classroom instructor. To assist the Faculty member each room contains a lab closedown list that outlines the “home” position for all of the equipment and furniture in the lab. The process of involving faculty has resulted in a teaching and learning culture of extremely well managed classrooms that exhibit few operational problems.



When not in use some of the labs appear to have no technology associated with them. Technology is delivered to the classroom on an as required basis. Some of the inventory is contained in locked cabinets located in the classrooms while other inventory, such as laptop computers and mobile presentation technology, is delivered by the New Media Lab Assistant as required. Even the classroom cabinets are on wheels so the technology can be relocated to another location should the situation demand. This kind of lab flexibility is unique to the Mixed Reality cluster and is unparalleled on the Ryerson campus. An inventory of 50 MacBooks is spread between three labs, used in off-site installations and for overnight loan. The cluster approach provides a cost effectiveness that can't be delivered via fixed labs. As a comparison three labs that contain fixed computers plus some mobile laptop loaners would normally involve 100+ computers.

The Hybrid Computing Media Lab, which makes up one of the core elements of the cluster, is one of Ryerson's most innovative labs in terms of reconfiguration and 24 hour access technologies. The Hybrid lab is used primarily to teach electronic and sensor based interactive technologies that are used in media based interactive installations. It was also the first lab at Ryerson to have a fleet of mobile media devices attached to it to develop curriculum for mobile delivery. To accommodate the collaborative nature of the curriculum the labs desks are normally arranged in pods. Students have 24 hour card access to the lab. Outside the 8am. – 6pm. Hours of staff have configured a vending machine to dispense tools and materials so students can work on their installations. In addition they've modified electronic safes for 24 hour MacBook distribution that contains the specialized software the students require for their projects.



The 24 hour Visual Computing Lab (VCL) was originally established in 1997 to support advanced graphic design, web design, mobile production, 3D animation and the compositing. It's a fixed computer lab, it's in third iteration and it was designed with Instructional delivery as its key component. Its layout allows the instructor to be significantly closer to the students --three rows max as opposed to six rows in its old configuration--. Its layout also includes a central walkway in computer cluster will allow for easier teacher access to students and a large teaching area at the front of the class. The room has the added advantage that it can be expanded when movable wall opens up. Seating can be arranged in RCC-359A so two rooms together become larger electronic classroom.

The VCL has also been equipped with a permanent presentation system that is unique at Ryerson University. The integrated SMART Technologies system provides instructional control over the software running on the lab computers, allowing Faculty to have control of what is on the students screens during lectures and allowing instructors to easily switch what is displayed on the classroom projector during lectures.

To achieve this two pieces of technology are employed in the lab. The first is SynchronEyes classroom management software. By employing it, teachers can actually turn off software that they don't want running on workstations during their classes. This operation is completely controlled from the lab based instructor computer and allows students to remain focused on the actual software being taught during each lab session. The software also allows the instructor control of what is on the students workstation screens during lectures, including the ability to turn them off, a useful feature during demonstrations or lecture components of classes taught in the lab. In addition instructors can easily switch what is displayed on the presentation projection system (or instructor station) during lectures including any students PC from any location in the classroom. This is useful for monitoring student activities during a class, to assist students with a problem while remaining at the front of the class or to display any of the classrooms work on the classroom presentation system.



The second technology installed in the VCL is a SMART Board 600i interactive whiteboard system. It's a 77" whiteboard with a projector built in and its surface is interactive. It can act as a standalone projector. It can be used as a standard whiteboard using electronic pens. Or its touch sensitive surface can be employed as a mouse that interacts with the classrooms instructor computer during software training sessions. The projector is rated at 1500 lumens, uses DLP® technology by Texas Instruments® and features Vikuiti™ Super Close Projection technology from 3M which minimizes glare from the projectors lens and minimizes shadows cast by the instructor. The combination of the labs design in concert with the SynchronEyes classroom management software and the Interactive Whiteboard System makes the Visual Computing Lab the best teaching and learning lab on the Ryerson Campus.

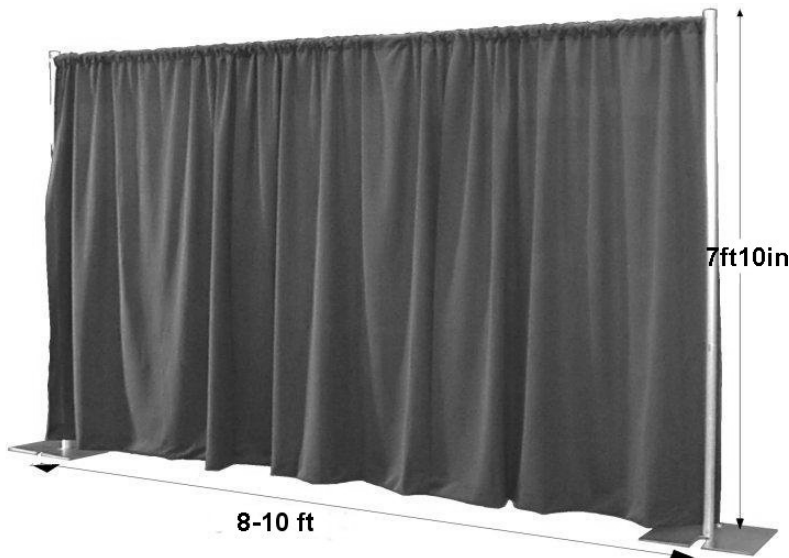


Also serving the Mixed Reality Production Cluster is portable classroom presentation systems that are easy to use. The systems consist of RDY2GO Espresso Media Center's, Panasonic projectors, portable Draper RoadWarrior projection screens, Sharp AQUOS portable flatscreens, backdrop kits and a state of the art short throw projector.

The fleet of RDY2GO Espresso Media Center systems have proven to be invaluable in this environment. They are pre-manufactured and pre-wired roll around media carts. They contain an adjustable projector mount system with Panasonic PT-LB60U, 3,200 lumen XGA projectors, built-in cooling fan with vents, 15 watt audio amplifier, 3 Speakers, a DVD/VCR Combo Unit, I/O Patch Panel, Shure Microphone and external AC for laptop(s) and other devices. The Espresso plugs directly into the existing classroom instructor PC or facilitates faculty laptops through VGA/Audio connections on the top of the unit. As a system the RDY2GO units provide the portability required to quickly change room function and place presentation technology in a variety of locations.

The cluster also has a total of five 80" Draper RoadWarrior Projection Screens that were chosen for their light weight and their ability to be pulled up from a floor level for quick deployment.

Two 52" LCD Sharp AQUOS LC52D65U are also available to the cluster. They have full HD 1080p resolution and are mobile having been mounted in Rotolift cases. The innovative ROTOLIFT™ case makes transport and use of a flat-panel display practical. Its gas lift system is ideal for rapid setup and allows for the monitor to be set in the traditional landscape mode or in portrait mode for eyecatching display. The AQUOS displays have a built-in ATSC / QAM / NTSC tuners and include 5 HDMI inputs, compatible with 1080p signals, 2 HD 1080p component video inputs, a sleek piano black cabinet and subtle recessed bottom-mounted speakers.



Other specialized equipment available to the Mixed Reality Production Cluster includes an NEC WT610 Short Throw Projector, a Panasonic PT-D3500U DLP projector and Portable Black Backdrop Kits that set up quickly, stretch 8-10 feet wide, stand 7 feet 10 inches high to be as backdrop curtains for Installations or for remote presentation backdrops by faculty.

More information on the Rogers Communications Centre, the shared FCAD facilities it operates and the specifics of the labs that it operates can be found at www.rcc.rverson.ca/technology/index.htm