

## MCC leads way with new cutting-edge Dream Lab for project-based learning

By Ken Datzman

The Melbourne Central Catholic High School campus, more than 50 years old, has never looked better. Recent years of progress are on display in the form of various new cutting-edge facilities which have been constructed on the roughly 40-acre site.

The transformation began five years ago when the private institution rolled out its new master plan for the campus, which also kicked off MCC's "Build-to-Serve" capital campaign.

The campaign successfully raised more than \$3 million for a phased construction and expansion project spread over several years.

The newest construction project to be completed at MCC is the 5,500-square-foot "Dream Laboratory."

The technologically advanced facility positions the school to be a leader in the region in collaborative, team-based learning. The process hones critical thinking, creativity, and communication, among other in-demand workplace skills.

"We have created an entire facility for this type of learning," said MCC President Michael Burke. This is where students can "design, collaborate, explore, create, and imagine" all types of projects in an inspiring hands-on learning environment.

The facility has dedicated spaces ranging from a robotics laboratory to a design zone to a cybersecurity room and a three-dimensional printer laboratory. As a technology, 3D printing has been lauded for its ability to give small-scale manufacturers the opportunity to create prototypes of new products quickly and cheaply. For example, 3D printing of medical devices is quickly becoming a promising reality, according to a report by the U.S. Food and Drug Administration.

Patients have already benefitted from 3D-printed medical products through access to personalized devices that have led to significant health improvements, says the FDA.

The Dream Lab has both independent learning and collaborative workstations for students.

Burke, an industry veteran in his field of expertise, calls the new Dream Lab "a major program enhancer for MCC."

"It's all about collaboration. It's all about the students coming together and using their knowledge to create and finish a project." He added, "All of them together — their collective wisdom — know more than any one single student knows."

The building's flexible design allows students to become "enthusiastic learners" and it helps drive the learning process toward creating and identifying problems, and then finding solutions.

MCC teachers use the facility for special project-based learning that can't be performed in a general classroom setting.

Researchers, educators, and students are discovering the benefits and advantages of cooperative, active, and engaged learning.

And MCC, a striving, visionary institution, has made a commitment to innovation and to improving student outcomes through this type of learning, which is seen as the future of education.

"The great thing about the Dream Lab is there are so many different formats available for student learning," said Burke.

"Our kids are now just getting in there and using the Dream Lab. They will find a hundred different ways to use all the technology and all the equipment. We want to turn the students loose in their imagination. We're



BBN photo — Adrienne B. Roth

MCC has just opened its newly constructed 5,500-square-foot Dream Lab on campus. The entire facility is dedicated to innovative learning technologies, including robotics, cybersecurity, and virtual reality. The flexible learning spaces and equipment help drive collaboration, critical thinking, communication, and creativity — skills employers embrace in the workplace. MCC President Michael Burke calls the Dream Lab a 'major program enhancer' for his school. MCC invested about \$900,000 in the building and another \$150,000 in furnishings. The Dream Lab was modeled after the Florida Institute of Technology's Digital Scholarship Laboratory.

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## Melbourne Central Catholic High School

Continued from page 1

trying to encourage students to be responsible for their own education, to take ownership of their education. So when they go off to a university, they are better prepared to thrive and succeed."

There is seating for 24 students at the high-top tables in the Dream Lab. Around the perimeter of the facility "is where all the project-based learning takes place, in the individual dedicated rooms, like the cybersecurity room and the video room, for instance," he said.

Studies show that the quality of physical learning environments, as well as access to resources, go hand-in-hand with academic performance.

MCC's Dream Lab, an investment of \$900,000 for construction of the facility and another \$150,000 for the furnishings, provides flexible and engaging spaces featuring areas for independent experiments and collaboration.

"The inspiration for the Dream Lab came from focus groups who wanted the school to provide the opportunity for students to achieve their full potential," said Burke, who has led MCC to new heights since being named to his position in July 2010.

Two years ago, Burke was selected as one of two school presidents in the nation to be recognized with top honors from the National Catholic Education Association. There are more than 1,200 Catholic schools in America.

He was honored during the NCEA's 2016 Convention & Expo held in San Diego, Calif., the largest annual private education association meeting in the country.

The Dream Lab showcases these rooms for concentrated student engagement:

- **Three-Dimensional Printer Laboratory.** This is where students can design a 3D project and then print it. As a technology, 3-D printing is reshaping the landscape of all types of businesses.

- **Virtual Reality.** "The students can experience virtual reality on a preset Google tool. The goal, eventually, will be for students to code and write their own programs and experience them through virtual reality," said Burke.

- **Makerspace/Robotics.** "This space is set up to be a robotics and drone lab. The kids can learn to build robotics and learn how to operate a drone. It's totally a hands-on learning experience for the students." Robotics is a multidisciplinary field of study. The traditional areas of study — mechanical engineering, electrical engineering, and computer science — have broadened into biological systems and cognitive science, according to the Robotics Industry Association.

- **Cybersecurity/Coding.** Among young people, this is one of the hottest career fields. The results of a new study, "Immersive Technologies and the Future of Cybersecurity," which surveyed people ages 16 to 24 in the United States, revealed that nearly three-quarters of respondents (74 percent) say the presence of virtual reality tools increase their likelihood of pursuing cybersecurity careers. Organizations are struggling to fill a shortage in cybersecurity professionals. "I think there will be a lot of interest in this particular part of the Dream Lab," said Burke.

- **Video Conference.** This space can be used for all kinds of "brainstorming" initiatives. It can also be used by the students who are applying for admission to colleges out of the area. Most of the top schools now require an in-person on-campus interview, or interview via webcam. "This is going to be a big part of the college-enrollment process going forward. Recently, an MCC student who applied for admission to Wake Forest University was interviewed in the Dream Lab's Video Conference Room. And more MCC students will be doing the same as part of the admission process," he said.

- **Video Broadcast Studio.** Here, students can record themselves as well as record groups. "We also do morning announcements in the Video Broadcast Studio. The students can learn to do all types of things working in this space and using the available technology."

- **Collaborative Design Space.** "This is going to be great for students as they collaborate. Four students, for example, can work on one document at the same time. They can collaboratively build that one document."

The capabilities of the Dream Lab will be in a constant state of upgrading as new technologies develop and come to the market.

"As technologies change, we will replace them to keep up-to-date. And the technology cycle moves at a pretty good pace. So in just three years, something could be obsolete in the Dream Lab. We will roll out the old technology and bring in the new technology. We designed the building to accommodate change," said Burke.

MCC's Dream Lab has yet to be named. So there is a corporate naming opportunity available. For more information on this opportunity, call the school at (321) 727-0793.

Area firm Certified General Contractors Inc. built the Dream Lab. "This is the eighth project we have finished with CGC. We have one more remaining, which will be a multipurpose facility. So we will have done nine projects — both new construction and renovation — with CGC in four years," said Burke.

American Business Interiors in downtown Melbourne is also a longtime project partner with MCC. Most of the furniture used in the Dream Lab features the Steelcase brand. ABI has been a Steelcase dealer for more than 40 years. The Dream Lab shows off an "industrial look."

Steelcase has been a leader in designing furniture for the education sector and conducts a lot of research on the most effective learning environments.

"Students today are preparing for futures they can't predict and jobs that have yet to be invented. At the same time, employers complain graduates lack the critical skills for real-world success — collaboration, critical thinking, communication, and creativity. It's these gaps and recent research that has led many leading educators and institutions to implement active learning pedagogies. These new teaching and learning strategies involve engaging students with hands-on group work, synthesis, analysis, and creativity," according to Steelcase.

Three years ago, Steelcase Education launched an "Active Learning Center" grant program. The grant invests in "visionary educators and educational institutions" that promote the advancement of active learning. Steelcase Education "seeks to identify leading educators and educational institutions looking to implement and expand active learning initiatives by leveraging their learning spaces."

Steelcase says it has invested \$3 million in classrooms in the first three years of the grant program.

The Dream Lab is modeled after Florida Tech's Digital Scholarship Laboratory. The Digital Scholarship Laboratory is a facility within the Evans Library that allows researchers to access, integrate, and share current and future information across all disciplines using digital tools and resources, such as Data Curation, Digitalization, Special Analysis, and Visualization, for example.

MCC has long benefited from a consultative and collaborative relationship with Florida Institute of Technology, whose campus is just across the street.

In general, the Digital Scholarship Laboratory supports research, teaching, and learning in all Florida Tech disciplines.

At the Dream Lab, MCC students are now working in a

college-like environment.

"Anytime we can model what Florida Tech is doing," said Burke, "we feel like we are on the cutting edge of education."

MCC just announced that their partnership with Florida Tech has been expanded to include a program called "MCC Emerging Scholars."

The new program allows qualified MCC juniors and seniors to begin their college career while enrolled in high school. This unique collaboration enables MCC students to take up to 24 Florida Tech credit hours during their high school years at no additional tuition cost. MCC will cover that part of the tuition. The financial benefit to the MCC students in the program is thousands of dollars, based on Florida Tech tuition.

"We've had a partnership with Florida Tech for six years," said Burke. "Now, we are building upon it with the MCC Emerging Scholars program. It's a great opportunity for our students. The program will begin with the 2019-2020 school year. Florida Tech is an outstanding university and we're thrilled to be launching the Emerging Scholars program with Florida Tech."

Florida Tech is ranked as a "Tier One Best National University" by "U.S. News & World Report," and it shines in a number of other college rankings.

Florida Tech has been named one of the nation's "50 Most Entrepreneurial Research Universities" by "Forbes" magazine. It is also ranked among the nation's "Top Technical Institutes" in the "Fiske Guide to Colleges," earning a spot alongside Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, and just 14 other schools from across the nation.

Through this opportunity, MCC students "will gain access to a first-rate faculty and state-of-the-art research and laboratories," said Burke.

Students participating in the MCC Emerging Scholars program will take classes during the school day on the Florida Tech campus in conjunction with their traditional high school classes.

The entrance requirements for rising juniors and seniors include admission to Florida Tech, a minimum of a "B" in related high school course work, required SAT or ACT scores, and a counselor recommendation.

Credits taken at Florida Tech may be used to fulfill MCC graduation requirements.

During the spring of their sophomore or junior year, interested students will work directly with MCC Student Services to begin the application process, Burke said. Once accepted, the students will be required to attend MCC/Florida Tech Orientation.

In addition to credit hours, MCC students may be eligible to earn an MCC Honors Diploma and enter college as a sophomore. They will also be guaranteed admission to a Florida Tech degree program if at least six semester credit hours have been completed with a cumulative grade-point average of 3.0 or higher.

Some of the Florida Tech courses MCC students have taken include: Calculus, Economics, Financial Accounting, Civilization, Introduction to Computer Applications, Managerial Accounting, and Psychology.

"It's really nice to have a cooperative neighbor like Florida Tech. This is a relationship we greatly value," said Burke.

He continued, "They've worked with us on our Dream Lab and now we're offering this value-added Emerging Scholars program for MCC juniors and seniors. Around our campus, it's already being referred to as 'MCC plus one.' Students graduate from MCC and then three years later they graduate from college. We're doing everything we can to prepare our students for college and beyond."