

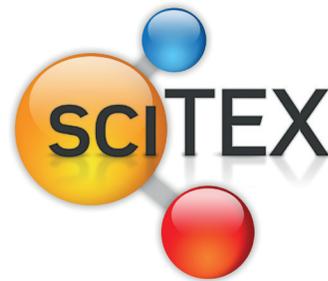


Collaborative Approach to Science Produces Soaring Assessment Scores

There is something special going on in McAllen Independent School District. In one year (2015-2016), there was a tripling of “time on task” in the MISD SciTEX science labs. That same year, the students’ Living with STEM assessment scores increased in 17 of the 19 schools where the program is used, with 4 schools achieving a 10% or better improvement.

“We are becoming more targeted in helping all student groups,” says Wendy Grohler, Elementary Science Coordinator for McAllen ISD. “We are getting improved results from the first year of implementation and are waiting for more in the future.” This, it seems, is part of what drives the McAllen program – Wendy’s forward-looking approach, always seeking to improve student learning outcomes, and a willingness to be ever-changing if it is in the best interest of the students.

LJ Create’s Living with STEM program, which meets 100% of the state science standards (known by the acronym TEKS) and is adopted in Texas, is being used in the McAllen SciTEX labs to teach standards-based science, technology, math, engineering, and English language skills. The McAllen SciTEX labs differ from traditional science labs in that each student has access to a desktop computer. The funding for these computers and the LJ Create learning resources come from Title I (federal) monies. Title I also allows the district to hire SciTEX paraprofessionals to assist teachers.



Assessment scores **increased** in 17 of the 19 schools, with 4 schools achieving a **10% or better** improvement.



“Sometimes I kind of get it, but when we do the hands-on, I really understand.”

Adrian,
5th Grade Student

An active learning approach

Wendy is very much in favor of a rotational model in the lab where different experiments are being run by different groups of students, and the LJ Create curriculum model readily supports this. Further, “A recent meta-analysis of 225 studies of success in STEM courses comparing traditional lecture to active learning found that students in the traditional classes were 1.5 times more likely to fail; students taught with active learning outperformed those taught by lectures by 6 percentage points on exams (Freeman et. al).”⁽¹⁾ Although this practice is in operation in some schools, Wendy understands that it is not a familiar approach for many teachers, who have been used to a traditional whole-class-on-same-task model. To encourage the rotational approach, which is ideal when resources are limited, Wendy has worked with LJ Create resource specialists to develop a hybrid system that is considerate of grade level capabilities. This includes recommendations on the best use of lessons aligned to the TEKS in their lesson plans.



Continual improvement management

In McAllen, a large district of over 25,000 students, the SciTEX labs are fully booked with all K-5 classes coming to the lab every week. Currently, the students go through the online video presentation lessons, investigations, hands-on practical assignments, and assessments in the lab. There is a stated preference, however, to use the labs for more hands-on work.

In order to do this, McAllen would like to transfer the video lessons and computer-based investigations that are part of the **Living with STEM** program to the home room, and free up the labs to become fully rotational, hands-on learning environments. The computers would continue to be used to review video presentations for content, deliver the hands-on instruction, and take assessments, but more time would be devoted to the student-driven active learning and the Five E's: Engage, Explore, Explain, Elaborate, and Evaluate.

The biggest obstacle to using the labs this way in McAllen is that 600+ K-5 teachers at 19 schools need to receive training on the LJ Create learning management system. The lesson plans between the home room teachers and SciTEX labs also have to be shared and adjusted to ensure consistency of instruction. McAllen has a head start, however, because all the schools already work from a district-wide set of lesson plans, and the home room teachers also accompany their classes to the SciTEX labs to give support and ensure the students make the connection with the work done in their home room classes.

Wendy, who works out of the McAllen Independent School District Administration office, regularly visits each school to ensure the program is being delivered properly, checks on results, makes herself available to the paras, and gathers feedback on what is and isn't working. There are also regular meetings of all the SciTEX lab paraprofessionals so that they can share tips and tricks, or brainstorm solutions to problems. LJ representatives have even participated in these meetings when a large change was being discussed, to make sure that the options were understood, and everyone agreed on the way forward.

21st Century learning for everyone

It should be noted that, although lesson plans come through the District's Administration Office, Wendy empowers the paras who run the SciTEX labs to contribute to the centrally coordinated lab lesson plans using their detailed knowledge of the **Living with STEM** lessons.

At each school, the paraprofessionals can create their own courses on the LJ Create learning management system and administer the program in a way that best fits their students. Rogelio Pena, paraprofessional at Thigpen-Zavala Elementary, particularly likes to customize the **Living with STEM** online lesson menus for the various grade levels and abilities that he sees. "The awesome part is that I can just select the parts of the program that I need for what each class will be working on that week. It literally takes me about 30 seconds."



At Escandon Elementary, which is also a Regional School for the Deaf, yet another type of lesson delivery is taking place. Escandon is successfully using the **Living with STEM** program with hearing-impaired children, who attend the SciTEX lab alongside hearing students. Interpreters support the students using sign language as the students read the subtitles in English or Spanish, and listen to the audio using assistive equipment. Says Chris Turner, LJ Create Product Development Director, "It was humbling to witness the desire for these students to engage in the program."

Dr. James May, Faculty Fellow for Innovation and Technology, and Professor of English as a Second Language for Academic Purposes at Valencia College points out, "It should be of little surprise that children who have grown up in a world where information and entertainment are on demand prefer visual stimulation in flexible but structured learning environments that have collaborative, experiential and authentic activities, and that embrace applied technologies."⁽¹⁾

¹ May, James S., Ed.D. "Empowering 21st Century Learners in STEM: An Impetus for Change." 2015.



"Science is the subject with everything. You get to do math, and reading, and you have to write down everything. It's pretty helpful and awesome."

Abigail,
5th Grade Student