

# Music makers

BY CALEB AYERS

Music has the unique ability to break down boundaries and connect people, but the tools to actually make music can be quite exclusive.



“I nstruments are designed with a certain body in mind at the center, and that body and mind is not the same body and mind that everyone has,” says JMU music education professor Jesse Rathgeber.

To help level the playing field, 160 freshmen engineering students and 12 sophomore music education students participated in an interdisciplinary project in the spring to imagine, design and adapt musical instruments for seven students at Stone Spring Elementary School in Harrisonburg with varying physical and cognitive disabilities.

This marked the third year that JMU has partnered with Harrisonburg City Public Schools to design instruments for students with disabilities, but it was the first year in which each section of JMU’s Introduction to Engineering course participated and all of the clients were from the same school.

In February, the elementary-school students visited JMU for STEAM—STEM plus the arts—Day, spending time with the music education students and playing different instruments. During subsequent visits to Stone Spring, the music education students observed their clients, assessing their interests, goals, needs and abilities.

**Creative design can help all students, including those with physical and cognitive disabilities, learn to play a musical instrument.**

“Just because they have some sort of disability doesn’t mean they are any less of a learner,” says music education student Hattie Saunders.

The engineering teams then used the music education students’ notes to inform the design of their instruments. Freshman Jessica Besnier treated the experience as more than just another school assignment. “This project isn’t about getting a good grade or getting it done super-fast,” she says. “It’s about bringing the joy of music to



Maria and for her to have a special instrument of her own.”

The project also gave the engineering students a glimpse of what real-world projects require. “I learned that engineering involves a lot of empathy and understanding your client,” says Brandon Duda. “It’s not just building something for someone and hoping that it works for them. You have to know what they need, what they are like and what they enjoy doing.”

After displaying prototypes of their instruments at the engineering program’s annual xChange and receiving feedback, each team brought their finalized instruments to Stone Spring for testing.

“It was inspiring to see what they could do when they were given the tools that they needed to do it,” says music education student James Carrol. “They just jumped at the chance and were amazing musicians.”

Each client had at least five different instruments designed for them, the best of which Stone Spring will keep. The instruments differed vastly in form and function. Some were simply revisions or additions

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to existing instruments, while others were designed exclusively to meet a student’s needs.

The engineering-music education partnership positioned the students to perform more efficiently and gain experience work-

ing with people in different fields.

“Our primary mission for our program is to produce these project-ready engineers, as we call them,” says Kurt Paterson, head of the engineering department.

“That really is just shorthand for having graduates who can step seamlessly into the world of work—and that is always multidisciplinary in nature.”

“Engagement is good for all of us,” he adds. “It’s the way the world works, and it makes a lot of sense to start it at students.”

Heather Eberly, the music teacher at Stone Spring, is thrilled with the impact that the instruments are having on her students. “It’s a great opportunity for these students to really be able to shine and have something just for them.”

Beth Sellers says the project has special meaning for her visually impaired daughter. “Music is one of her favorite things, so I think it’s really important for her to be able to have music that she can access.”



To view a video about the design project, go to [j.mu/musicmakers](http://j.mu/musicmakers).



Stone Spring Elementary School was a busy place when the specially designed musical instruments were tested.