This is the first story in an occasional series that will highlight UA initiatives and efforts aimed at optimizing teaching and learning.

Compelled by research providing evidence that active engagement and collaboration improve student learning, many UA faculty members are redesigning their courses to move away from traditional lectures and toward more student-centered active learning in the classroom.

"I talk to my students about the fundamental principles of how people learn, and I tie those principles explicitly to the activities we do in the classroom," says John Pollard, associate professor of practice in the Department of Chemistry and Biochemistry. "Constructing knowledge and being challenged is an important part of learning."

To facilitate evidence-based collaborative active learning strategies, the UA has begun overhauling spaces across campus - big and small - to create environments that foster interaction, hands-on activities and small group exploration of the topics at hand.

The Birth of Collaborative Learning Spaces

The effort to revamp physical spaces to support learning began in fall 2014 in connection with a grant from the Association of American Universities to improve undergraduate science, technology, engineering and mathematics education. A team of campus leaders was formed to explore the benefits of spaces that facilitate collaborative learning and a pilot project was launched to transform the Science-Engineering Library Journal Room into a Collaborative Learning Space.

The knowledge gained during the successful pilot provided the basis for a five-year Collaborative Learning Spaces Strategic Plan. As planned, five new CLSs were built in the summer of 2015 and five more were built in the summer of 2016. Because the demand for these spaces increased dramatically, the UA doubled the number of rooms built during the summer of 2017, bringing the total to 20 rooms. As illustrated on this map [1], the CLSs, ranging in capacity from 24 to 264 students, are distributed across campus to provide many faculty and many students an opportunity to experience the unique benefits of the innovative spaces.

Teaching in a CLS

"In this kind of active learning environment, the point is to change the roles and change the expectations," says Jen Roth-Gordon, associate professor of anthropology. It's not about the professor doing the work and the students passively observing, taking notes. Everyone is supposed to work."

Jane Hunter, director of academic resources and special projects in the Office of Academic
Affairs, says that many faculty members actively seek opportunities to teach in the CLSs because their courses are designed for collaborative learning.

In other cases, Hunter added, the appeal of the spaces motivates faculty to rethink how they deliver their courses.

"The layout of the collaborative learning spaces is great for getting discussion going and it is easier for students to stay engaged," says Jeff Goldberg, dean of the College of Engineering.

While these rooms have significant technology upgrades, many instructors find that low-tech equipment, such as easy-to-use tabletop whiteboards, are the most effective tools for promoting student collaboration.

"We all know that passive receiving of information is overrated. It's the active engagement that makes all the difference," says George Davis, Regents' Professor Emeritus of Geosciences and provost emeritus.

**Campus Commitment to Improved Learning Spaces**

As a result of the excitement that has been generated by the CLSs, efforts are underway to renew and refresh other educational spaces across campus as well.

Dated and dreary lecture halls in Physics-Atmospheric Sciences and Biological Sciences East were renovated over the summer. "With new seats, flooring and lighting ? plus some fresh paint ? these are now comfortable, invigorating learning environments," Hunter says.

Consistent with campuswide goals to embrace evidence-based student-centered learning, the new UA strategic plan that is under development is expected to include plans to continuously improve campus learning spaces.

**Support for Faculty**

As more faculty move toward active learning, the Office of the Senior Vice Provost for Academic Affairs is working to ensure instructors have the environment, tools and preparation needed to be successful.

Support for faculty who want help with redesigning their traditional lecture-based courses to incorporate evidence-based, student-centered, active learning pedagogy is provided by the Office of Instruction and Assessment.

Over the last two summers, more than 50 faculty, many of whom were preparing to teach in a CLS for the first time, participated in a three-week course on collaborative learning conducted by OIA.

"For the majority, the course left them feeling rejuvenated and excited to try new strategies in their courses," said Erin Dokter, associate professor of practice in the Office of Instruction and Assessment, who taught the course.

The UA’s collaborative learning spaces were featured in eCampusNews. To learn more about collaborative learning spaces, visit http://academicaffairs.arizona.edu/CLS.