Paul Ritter and Baylee Ritter hunched over the laptop computer, using both words and hand gestures to communicate across thousands of miles courtesy of Skype. Paul Ritter, president of the Illinois Science Teachers Association and a biology teacher at Pontiac Township High School (PTHS), and his daughter, PTHS junior Baylee, were speaking with officials in Istanbul, Turkey, the latest in a long list of parties across the globe who have decided to incorporate into the now international Prescription Pill and Drug Disposal Program (P2D2). In December of 2013, the program marked one million pounds of pharmaceuticals responsibly recycled, thanks to the student-driven program. Founded by Paul Ritter with the help of students and dedicated professionals both inside and outside of the classroom, the P2D2 program has touched the lives of hundreds of students, garnered the attention of government officials in far-reaching nations, and made a long-lasting impact on the environment, ensuring that the students who are the future of our world have a world in which to continue their work.

The remarkable story of P2D2 began in 2003 with the simple question of what should one do with expired and unused pharmaceuticals taking up space in medicine cabinets? Informal research quickly determined that most controlled substances outliving their usefulness simply were disposed of into drains or flushed down the toilet, eventually making their way into the water supply. Ritter challenged his students to take the research to the next level, to determine the effects of improperly disposed drugs on America’s drinking water. It was not long before his students uncovered what Ritter describes as “startling information pertaining to the effect of pharmaceuticals on the quality of drinking water around the world.” After reading and discussing “Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams, 1999-2000: A National Reconnaissance.” in Environmental Science and Technology, students found that “scientists with the United States Geological Society have detected drugs such as antibiotics, anti-depressants, birth control pills, seizure medication, cancer treatments, pain killers, tranquilizers, and cholesterol-lowering compounds in varied ground water sources.” Furthermore, they uncovered that scientists were concerned “that, in humans, the chemicals

Lessons in conservation and recycling were reaching far past the high school to make positive changes in the community and potentially the world.
in our water supply could increase rates of breast, testicular, and prostate cancer, as well as lower sperm counts and disrupt hormones.” Among the most disturbing discoveries was that waste water treatment methods were not only incapable of, but never intended to, removing such chemicals in local facilities. To complicate matters, pharmaceutical companies have been characterized as reluctant to take responsibility for recycling their products, as described in Susan Sharon’s 2010 article, “DEP Tests Show Prescription Drugs Leaching From Landfills.” Documenting their findings on the P2D2 website, the information sank in and it became evident that the safe disposal of prescription drugs was not currently a viable option. Ritter became determined to change that and set about creating a program that would provide this service.

In an effort that became more and more like a crusade as it advanced, P2D2 began to make inroads not only at Pontiac Township High School, but in the surrounding community. Through the efforts of Ritter’s students, local drug stores began to collaborate with town officials and law enforcement to begin providing safe places for medication to be deposited until they could be transported to a recycling plant in Indiana where they are incinerated to create electricity. Former US mailboxes were repainted and repurposed for the job, often placed inside the lobby of police stations. Many local drugstores began to accept medication as well, securing the unwanted prescriptions in a locked area until law enforcement officials could retrieve them. Within time, the program launched by Ritter and his students began to inspire others, including both students and teachers, and the outreach to other communities began in earnest. Principal Eric Bohm, at the time a history teacher in the building, initiated a letter writing campaign to elected officials ranging from local, to state, and to even federal levels in order to increase awareness of prescription drug disposal. Media became an important tool, and the students became savvy with contacting local radio stations in central Illinois to raise the profile of the fledgling program, boosting it into the consciousness of the general public and ultimately to the Illinois state capital. As the program gained steam, students at PTHS slowly began to move out of their comfort zones and began realizing that their efforts were paying off in high impact ways. Lessons in conservation and recycling were reaching far past the high school to make positive changes in the community and potentially the world. In short, Ritter’s influence began to extend far beyond the classroom for these students, and his attempt to capture young hearts and inject into them his zeal for saving the Earth began to manifest itself in real-world applications both in Pontiac and statewide.

Baylee Ritter at the Volvo Adventure Awards, supported by UNEP. Photo by Paul Ritter
Billing itself as “a collaborative effort between communities, local pharmacies, police departments, hospitals, city officials, students, and more,” the P2D2 program, which once existed only in imagination, swiftly boiled over into reality. Pharmacies such as Walgreens, K-Mart, and local Sartoris Super Drugs in Pontiac agreed to allow customers to bring in unused prescription drugs for the purpose of safe disposal. However, neither Ritter nor his students were satisfied with only local success. Megan Bozarth, a social studies teacher (who now teaches at Bloomington High School), was enlisted to teach her honors students how to write to representatives and senators in support of bills concerning legislation funding P2D2 efforts, placing an additional $25 fee on illegal drug possession fines in Illinois. With these new funds, Illinois could ship all prescription drugs collected to incineration facilities at no cost to the taxpayer. The bills passed unanimously through the Illinois House in the spring of 2011 and eventually made their way to the governor’s desk. On Wednesday, August 24, 2011, crowded into a small open space near Michigan Avenue next to the Chicago River and protected from curious Chicagoans by skyscrapers, a press conference took place. After speeches from various government officials, teachers, and students, Illinois Governor Pat Quinn finished
signing the documents in front of him and handed Bills 2056 and 2053 to Ritter, Bozarth, and the students who were intimately involved with the genesis of the bills. After years of development and thousands of hours of work, Ritter and his students had realized their dream of protecting the Illinois water supply. Yet the work was far from finished, and P2D2’s victory in Illinois was the impetus it needed to gain the attention of activists in other states. Like the Chicago River, famously reversed long ago and ultimately reaching the Gulf of Mexico vicariously through other rivers, P2D2 was to make its way throughout the country by word of mouth, media exposure, and the sheer will of its creator and his students.

As important as the physical recycling may be, what are equally important are the pedagogical opportunities afforded by the program. From the beginning, students were able to witness the success of a grassroots approach to solving a real-world problem and to realize that starting off on the right foot required doing the research. At PTHS, Ritter and I combined our biology and English classes to conduct interdisciplinary research into the local water supply, the availability of drug recycling, and other information peripheral to the cause. Ultimately, the research yielded curriculum opportunities for students to write in multiple genres. Once the students documented the information and learned how to properly cite their sources, the next step was to educate partners, including but not limited to pharmacists, city officials, government agencies, legislators, researchers from local colleges and universities, and media outlets. Once students showed civic leaders how changes could improve the environment, it took very little additional convincing to get them on board. PTHS found particular success with the Street Superintendent and Public Works Director in paving the way for new policy, leading to the incorporation of recycling containers and even

This program was developed with the philosophies of ‘think globally, act locally’ and ‘students are the agents of change.’
the stenciling of sewer drains to promote cleaner water. In other classrooms such as Art, a logo was created for the program. Originally conceived as a Superman-like icon for recycling drugs, Pill Bottle Phil was created, illustrated, and subsequently adopted by students as the mascot for P2D2. In another classroom, English teacher Brian Blair had his students write and illustrates a children’s book for the character. Other examples of cross-curricular activities included a P2D2 theme song composed and recorded in Music Theory; T-Shirts and banners designed and produced in Graphic Arts; the writing of “Eco-ku’s,” haiku inspired by conservation activities, in Honors English. In addition to multiple P2D2 presentations at ISEC conferences, in 2012, Ritter, Bozarth and I presented “Water is Life: Developing Eco-Conscious Curriculum as an Avenue to Teacher/Student Influence in the Classroom, the Capital, and the Environment” at the National Council of English Teachers conference in St. Louis. Amazingly, what began in a classroom eventually made its way outside of the school’s walls as

P2D2 and Superman in Metropolis, Illinois.

Repurposed boxes for collection of drugs are colorful, attractive, and educational. Photo by Paul Ritter.
From the beginning, students were able to witness the success of a grassroots approach to solving a real-world problem, and to realize that starting off on the right foot required doing the research.

student engagement on a local level paved the way for eventual change on the state and national levels.

As Pontiac’s homegrown program advances, P2D2 continues to attract high profile media coverage. Ritter and five PTHS students, including his daughter Baylee, traveled to Sweden in early June 2012 to compete in the Volvo Adventure Awards. The competition, in conjunction with UNEP, invited twelve groups from among many nations to present their innovative and groundbreaking eco-conscious programs for a “greener future.” The P2D2 team, already named first in the USA, returned home as third-place world champions. In 2013, Ritter and Baylee traveled to Nairobi, Kenya, to present P2D2 to the Tunza International Youth Conference.

As of the writing of this article, a version of P2D2 has been incorporated in communities representing more than two-thirds of the states of America, as well as several other countries including Brazil, Mexico, and soon the Middle East as talks progress with Bahrain and Turkey. According to Ritter, “This program was developed with the philosophies of ‘think globally, act locally,’ and ‘students are the agents of change.’ Knowing that the P2D2 program is a work in progress, I realize that it will change in response to our global needs. I do hope that people will look at

Illinois Governor Pat Quinn signs Bills 2056 and 2053 while PTHS students look on.
it in years to come and see that we gave everything we could to be the catalyst for knowledge and change. This program has changed my life forever. I dedicate this material to our children. They are the future of our world.”

Far from merely changing the way Illinois now disposes of unused and unwanted prescription medication and controlled substances, the program has forever changed the way many teachers in Pontiac and other cities approach innovative teaching, using the real life successes and applications of P2D2 to galvanize the potential of students, many of whom typically performed marginally, and animate them to levels of achievement demonstrated on the nightly news broadcasts. The scene in Chicago was far from the culmination of the program’s success; as more teachers incorporate elements of the program into their classrooms, and as more communities adopt the program, the full potential for eco-conscious curriculum has yet to be realized. Please contact P2D2 leadership to discuss incorporating P2D2 into your community, state, or country.

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