

# MAKING THE Connection TO Career Technical Education



Thursday, November 5, 2020

## PART 1

# Trailblazing Women of Chippewa Valley Schools Career and Technical Education

By Claire Brisson

Director of Career and Technical Education

The best way to understand the value of career and technical education (CTE) is to listen to our alumni. The perspective that time and reflection bring is often profound, and their experiences can provide an illuminating example for younger students to follow. This year's, 2-part, "Making the Connection" will introduce you to two trailblazing women who took advantage of the opportunities offered by CTE when they were students attending Chippewa Valley Schools.

Alexa Bartold graduated from Chippewa Valley High School in 2017 and completed our multi-year CTE Design Technology program with Mr. Jason Youngblood. Today, Alexa is a Senior at Kettering University studying Mechanical Engineering. As she describes it, "Before taking any CTE classes in high school, I had no clue what career path I wanted to pursue." Alexa enjoyed being creative, so she enrolled in Design Technology, initially thinking that the architecture pathway might be her destiny. She reflects, "I had no idea what engineering was, but through that first CTE class, I learned about it, and soon discovered that was what I wanted to do."

Academics and CTE; it all fits together. Alexa says, "CTE helped me find real world applications to my core studies like math and physics. It helped me excel in my core classes." Alexa also took AP and Honors courses along with CTE which helped her "learn how to study better and develop important time management skills."

CTE is valuable! Alexa says, "The material I learned in my CTE classes still holds value to me four years later. The applicability to real world situations and career-specific material has helped me far more than anything I studied for the standardized tests like ACT/SAT. Mr. Youngblood ensured that I was continuously challenged." When Alexa expressed her strong interest in robotics, Mr. Youngblood allowed her to borrow a new VEX robot for the summer. "I was able to build the VEX robot, learn to program it in Robot C, and tinker while I learned how to maneuver it in different configurations. This experience gave me confidence to share my knowledge with my peers. The following fall, I helped to establish the VEX Robotics Club at CVHS. Teachers too were just learning about VEX Robotics, so I was invited to explain my knowledge about working with a VEX robot with the Design Technology teachers from both high schools who appreciated my understanding of the robot. I also enjoyed sharing my knowledge with students and parents at the CVHS Curriculum Night."

Alexa describes how CTE skills are both pivotal and enduring: "One of the most important skills I learned in high school, and still use today, is 3D modeling. I was given the opportunity to learn AutoCAD, Inventor, and SolidWorks. I've used these programs to complete projects at work that I would not have been able to accomplish without this prior knowledge." The July following high school graduation, Alexa began her first work experience at General Motors in Manufacturing Engineer-

ing. You might be wondering; how did that happen so quickly? Alexa explains, "While I was still in high school, I participated in Kettering's Co-op Job Fair. Ms. Barbara Karchin helped me compose my resume which showcased the 3D modeling skills I learned in my CTE courses. That resume from high school is now a living document that I update as needed. CTE preparation in interviewing helped me to be articulate in my first real interviews. I was pleasantly surprised to find that every interview slot was booked with a variety of potential employers. I wanted to pursue a co-op experience with robots, and I was invited to several second interviews. I had a difficult choice, but ultimately, I opted to accept the GM opportunity."

What is Alexa doing now? As a Senior at Kettering, Alexa still works at GM as a Manufacturing Engineer co-op at the GM Tech Center. "Every three months I have rotated groups within the Vehicle Systems organization to give me some well-rounded experience. I am assigned one project/goal, solving a problem, or identifying savings in resources. Sometimes there are side projects that require testing. I have learned how to be very effective in analyzing data using Excel. I am currently wrapping up work on my senior thesis related to robotic safety technology. Safety is a number one priority at GM. I also learned the importance of safety in high school from Mr. Youngblood as he taught me fabrication skills in the Fab Lab. I am hoping to be offered a full-time position after graduation in the GM Track Program that includes four, 6-month rotations which would put me on the upper-case track for future growth." As a female in a non-traditional career field, Alexa reports, "I have been treated as a professional in all of my experiences, both in my co-op rotations and in college."

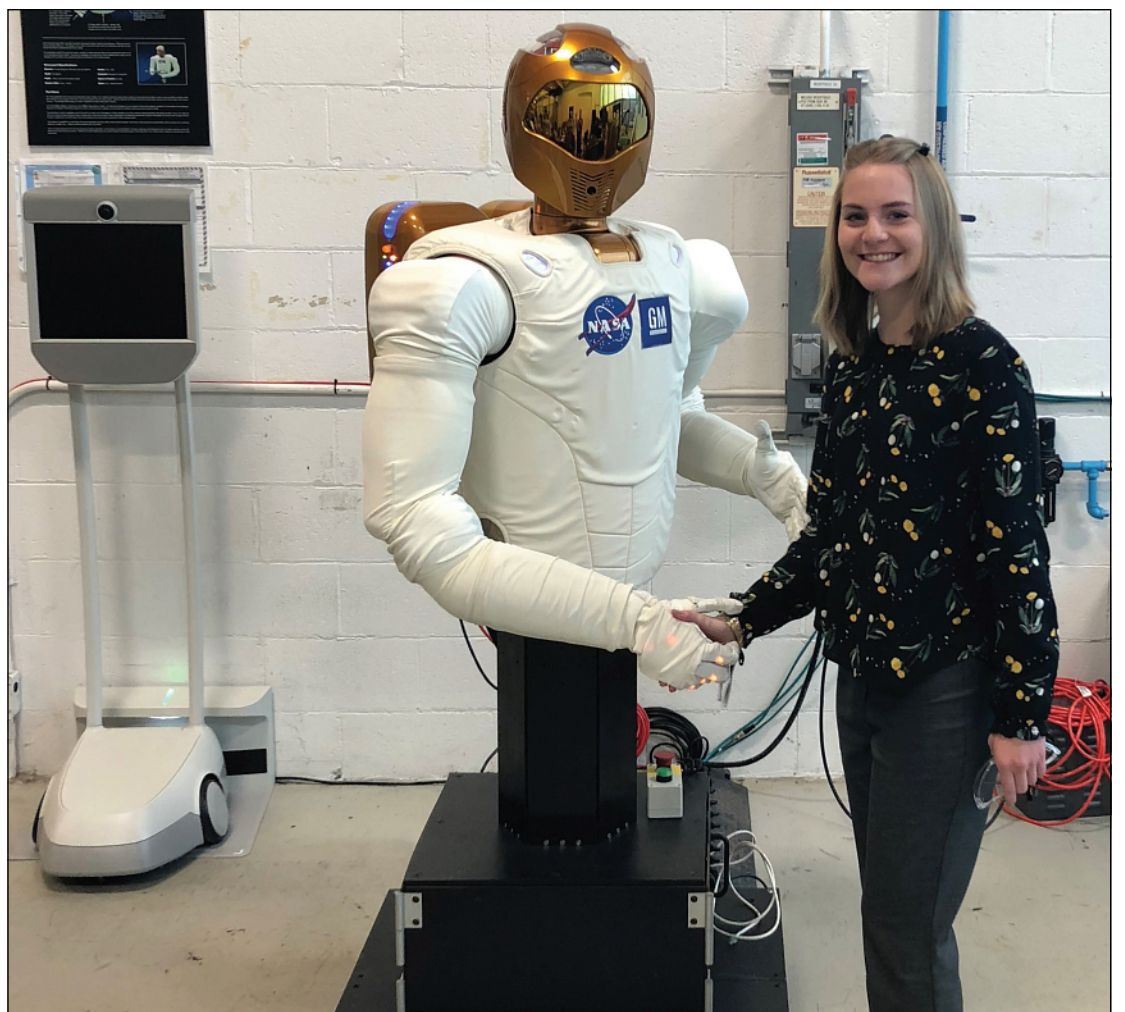
What advice does Alexa have for middle or high school students? "Take some time to explore all of the options you have, consider possibilities, watch videos about any job that may be of interest. Work to develop strong study habits; courses in college are 10x harder than high school. Take advantage of CTE; you may never know what interests you until you try it. I know that if I did not take that leap into my first CTE class, I would have never discovered my interest in engineering. I would not be where I am today, and I am fully confident, that I would not even be pursuing engineering had it not been for that decision. The projects, field trips, and other opportunities helped me to discover, and later solidify, my decision to pursue this career." Between her paid, co-op experiences at GM and significant scholarships from VEX Robotics and Kettering University, Alexa will soon be graduating with her bachelor's degree in Mechanical Engineering debt free!

*Part 2 of Trailblazing Women of Chippewa Valley Schools CTE will feature Lauren Kindzierski, a woman nationally recognized for her expertise in the field of Customer Experience, or CX. Her world includes digital transformation and artificial intelligence. Check the Dec. 10 edition of the Macomb Daily to read more.*



SUBMITTED PHOTOS

Alexa Bartold (CVHS class of 2017) at one of her co-op work sites at General Motors. "My favorite thing about work and school is my ability to think outside of the box to solve problems. I love critical thinking where the answer is never right in front of you."



Alexa Bartold (CVHS class of 2017) is a senior Mechanical Engineering student at Kettering University and works as a co-op at General Motors. Her areas of greatest interest are safety and robotics. She is currently working on her senior research thesis entitled "Integrating New Safety Technologies into Robot/Operator Shared Workspaces."

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# MAKING THE Connection TO Career Technical Education

Thursday, December 10, 2020



## PART 2

# Trailblazing Women of Chippewa Valley Schools CTE

By **Claire Brisson**

*Director of Career and Technical Education*

To understand the value of career and technical education (CTE), it is wise to listen to our alumni. Part 1 of this two-part series (published Nov 5, 2020) shared the story of Alexa Bartold—a remarkable young woman making her way in the field of manufacturing engineering. Today, part 2, introduces you to another CTE trailblazer in a different industry...

Lauren Kindzierski is a trailblazer in Customer Experience, or CX, as it is referred to in the marketing industry. Lauren graduated from Dakota High School in 2004, and today is Vice President of CX Marketing for Hinduja Global Solutions (HGS). Her career path from high school to today is extraordinary, and CTE certainly played an important role in that path.

Taking high school CTE courses in Business, Accounting, and Marketing all helped Lauren to prepare for continuing success at Walsh College. Beyond the technical and career-relevant knowledge she gained from these initial CTE courses, Lauren also built a network of mentors. Lauren says, “I intrinsically loved to build relationships with people, including teachers, who became powerful mentors.” Among high school teachers that she cites as important mentors are Paul Sibley (Motivational Psychology teacher; now Executive Director of Secondary Education) who remembers Lauren as, “very mature and always asking good questions”; Gretchen Vermiglio (Accounting teacher, retired); and Nancy Atienza and Anne Seneker (Marketing teachers). Lauren said, “I did a little bit of everything in high school including Student Government, National Honor Society, served as a Student Aide for Mr. Sibley, worked a part time job, and participated in athletics (tennis and cheerleading). I was also a member of the CTE student Marketing organization called DECA and attended the DECA International Competition in Chicago with Ms. Atienza. That was the first time I ever visited a big city! At 18, with the help of Ms. Seneker, I also landed a co-op job at Keller Williams Realty.” By 19, Lauren had earned her Real Estate License.

You may have observed already that Lauren was an active participant—if not master orchestrator—of her own educational and career development. You may have also guessed by now that Lauren regards mentors as critically important in that process. And as for “always asking good questions,” that is a hallmark trait of critical and creative thinkers. High school was just the beginning, albeit an important one.

At Walsh College, Lauren distinguished herself and graduated as Valedictorian, earning both bachelor’s and master’s degrees there, and serving as adjunct faculty for two years, guided by her mentor, Dr. Mike Levens. Just as her high school co-op job provided invaluable, practical experience, so too did her college internship at Dialogue Marketing, where she continued to work for several years. Lauren was an early adopter of social media—something that was in its infancy in marketing at the time—and she identified a potential, new sector in the company’s business model. She recognized early in her career that digital disruption would be a challenge faced by marketing professionals, and that digital disruption is best answered by digital transformation. As change often is, Lauren’s thinking was not



SUBMITTED PHOTOS

Lauren Kindzierski (Dakota HS class of 2004) is now VP of CX Marketing for HGS (Hinduja Global Solutions) and resides in Naples, FL with her husband and two children. Lauren loves her work, is clearly outstanding at what she does, and continues to grow her career. How to find work/life balance? Long before Covid-19 imposed work-from-home upon many people, Lauren intentionally and carefully arranged her childcare to allow her to work from home to provide more work/life flexibility.



As a leader in Customer Experience (CX), Lauren Kindzierski is often sought-after to speak at professional conferences and to share her insights about trends in her field. Most recently, in 2020, Lauren was the recipient of the Gulfshore Business 40 Under 40 Award for distinguishing herself in the profession and the community of southwest Florida where she now resides with her husband and two children.

without some resistance, but her enthusiastic persuasiveness paid off in a big way. Peter Schmitt—another of Lauren’s mentors—was a Board Member and Chief Strategy Officer at Dialogue Marketing. Lauren says, “Peter challenged me to come up with a plan for my social media idea, and ultimately, he gave me permission to create and drive my own division of the company called Social Lift, Inc. The unit was not an entirely standalone company, but I was given the creative freedom to run it like one.”

Lauren’s instincts brought her remarkable success that did not go unnoticed. In 2012, Lauren was selected as one of Crain’s Detroit Business Magazine’s “Top 20 in their Twenties” Award Recipients! Schmitt reported to Crain’s that Social Lift became the most profitable unit within the \$31 million dollar company with the expectation that it would continue to be a major source of growth. Lauren knew that her creative vision of social media applied to marketing could specifically target a customer’s needs to a client base. Lauren went on to become part owner of Dialogue Marketing and the company was sold a few years later.

Lauren has, and continues to be,

a leader in the field of Customer Experience (CX), a specialty that was in its infancy at the time. CX now involves strategies and tools like big data, the integration of artificial intelligence (AI), analytics, automation to help route posts to the right team members, and decoding the voice of the customer in the social media space, among many others.

Lauren is a sought-after speaker and prolific writer in the field of CX. She annually publishes articles on Trends to Watch in CX, and while there isn’t room here to fully explain the breadth and scope of her forward-thinking ideas, this author would recommend reading the Fall 2016 article published in Customer Relationship Management entitled 10 Customer Experience Trends to Watch, which looked forward to 2020, and a more recent article published in the Jan 2020 inaugural issue of CX insight where she similarly co-authored The Top Eight Trends Shaping the Future of Customer Experience. (Both articles can be found online.) Here, Lauren and co-author James Waite say, “The difference today—in 2020—is that it is no longer about why it’s important to invest in CX initiatives;



Lauren Kindzierski (Dakota HS class of 2004) when she received the 2016 Silver Stevie Award – Women in Business – Executive of the Year. Recipients of this award are nominated by their peers for recognition for being a strong woman leader in business.

rather, the conversation is around how much investment and in which areas should be invested... ‘silos data’ problems will start to get resolved as customer data platforms (CDPs) become more prevalent, and give CX professionals a 360-degree view of the customer for better personalization and insight into the customer journey.”

While the marketing industry overall may not be considered nontraditional for women, like so many industries, at the executive level, women may find themselves in the minority or even alone. Lauren’s advice to young women: “Be passionate about what you are pursuing and what you believe in. Seek out mentors to guide you both personally and professionally. Board Rooms—and other situations—may

be all male, but never feel inferior or be afraid; stand confidently and inspire others with your passion.”

Quite a journey it has been, and continues to be for both of our trailblazers, Lauren and Alexa. A common thread that I have observed, is the proactive responsibility they take for their own career development: taking advantage of opportunities; engaging in a variety of experiences to discover their passion and then working steadfastly to fully develop it; availing themselves of great mentors; employing future-focused, creative thinking; and ultimately, being unafraid to be who they are. We can all learn from the examples they have forged, and I thank both of our trailblazers for sharing the story of their journeys.

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# Making *the* Connection

Thursday, February 13, 2020

Chippewa Valley Schools



## Chippewa Valley Schools celebrates CTE Month



A friendly handshake before competition begins: National 1st and 2nd place champions (now alumni) Matthew Miller, Chippewa Valley HS (left) and Joseph Bednar, Dakota HS (right) at the 2019 Business Professionals of America (BPA) Bank On It Tournament in Anaheim, CA.



Work-based learning and community service come together in this project: CTE Design Technology Senior Noah Zielinski is holding the custom-made cookie molds that he fabricated for the CTE Culinary Arts program. The process started with designing the molds using AutoCAD software; converting the 2-D CAD drawings to 3-D models with Inventor software; creating wood prototypes using Mastercam software; involved several iterations and tweaking; and culminated in metal fabrication using a Haas CNC mill. Culinary Arts students can now make delicious cookies with the Chippewa Valley and Dakota High Schools' logos imprinted in them.



Work-based learning in CTE takes many forms, but the most relevant and in-depth is on-the-job work experience that builds upon classroom learning. Senior Amanda Hofmann is an award-winning, advanced Automotive Technology student, shown working on a tire in the classroom. She also works as a paid intern at Russ Milne Ford under the supervision of Jacob Ernst, Ford Master Technician. Greg Harnden, Service Manager, said they are "so impressed with Amanda that she has been chosen to continue to receive support from Russ Milne Ford as she progresses in her education at Henry Ford College in the Ford ASSET program."



Matt Steger, Dakota High School alumnus (class of 2019) earned the highest award in the MITES state competition last year. After graduation, he was among the select few invited to compete in the AWFS Fair "Fresh Wood" competition in Las Vegas and won Honorable Mention (3rd place)! He designed and built this modern table with waterfall edge from exotic woods in his high school CTE Woodworking & Cabinetmaking program.

**By Claire Brisson**  
*Director of Career and Technical Education*

February is National Career and Technical Education (CTE) Month and thus it seems fitting to focus on facets of CTE that are at the heart of what we do. Providing students with the best possible career-focused learning experience is truly a collaborative effort that, at its core, begins with a partnership between education and industry.

Let's start with our teachers. One cannot become a CTE teacher without having substantial experience working in the related field in which one teaches. Traditionally, 4,000 hours, or about two years of full time work, has been the minimum expectation. Even with teacher shortages and alternative pathways to becoming a CTE teacher available, some substantial engagement with the related industry is still an expectation for CTE teacher preparation.

That relationship with industry does not stop once an instructor is officially regarded as a CTE teacher. Like all teachers, there are continuing professional development (PD) requirements, but CTE teachers must also be mindful to include industry-specific PD as part of their continuous learning process. Technical and skills-based occupations are continuously changing as new technologies are introduced and evolve. It's no small challenge for CTE teachers to stay abreast of these changes, but some find that the best way to do that is to keep one foot in the world of work outside of education. For example, our Construction teacher, Adam Carr, works on commercial construction projects in the summers. One of our Medical Academy instructors works on Saturdays as a medical lab technician; another works part time as a nurse at McLaren Hospital, while another still practices as a chiropractor.

Equally important, is the relationship that industry has with our students. Did you know that work-based learning (WBL) is a required component for all CTE students? WBL is a continuum of experiences that include career fairs, classroom speakers, and industry tours at one end of the continuum, to actual work via an internship or apprenticeship at the other. In between are things like job shadowing, school-based projects guided by industry professionals, and mentoring. The keys to successful WBL are sustained, high quality interactions that ultimately link and blend educational experiences to career options.

In a similar vein, all CTE students are given the opportunity to develop leadership skills through official career technical student organizations (CTSO) like BPA, DECA, HOSA, and SkillsUSA, and/or through teacher-developed experiences that include competitions, community ser-

vice, and student-led activities. Chippewa Valley Schools participates in all of the above (and then some!) And it is not unusual for some students to earn state and even national acclaim via these many opportunities. Just one fun example: In 2019, two of our BPA (Business Professionals of America) students found themselves competing against each other for the top two national spots in the "Bank On It Tournament." This competitive event is intended to "Test your accounting knowledge in the ultimate BPA tournament!" The result? Matthew Miller from Chippewa Valley High School, and Joseph Bednar from Dakota High School, became the National 1st and 2nd place champions respectively! What a testament to our teachers and industry partners who prepared them so well! That is what CTE is all about, and what we take time to reflect upon and celebrate every February during National CTE Month!

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# MAKING THE Connection TO Career Technical Education

Thursday, March 14, 2019

## MACOMB COUNTY

# The Power of Projects in Chippewa Valley Schools CTE

By Claire Brisson

Director of Career and Technical Education



Career and Technical Education (CTE) programs have always been a place where students could expect a more “hands-on” learning experience. Career-focused, relevant and experiential learning is a hallmark of CTE. In thinking back to my own high school days in the mid-1970s, I realize that even though I was a strong academic student, the most memorable learning I had was associated with hands-on experiences.

At that time, in the “college prep” high school that I attended, CTE as we know it today did not exist. Like many young women, I availed myself of “Home Economics,” one of the closest, comparable options to a CTE-like course. It immersed me in a hands-on, iterative process of trial and error, practice, and problem-solving. It was so unlike the rest of my day that I did not even think of it as “school,” but clearly the practical lessons I learned remained.

Me and machine: I eventually mastered sewing skills so well that I made every homecoming and prom dress that I wore thereafter; preferring the final product that was uniquely mine. I spent countless hours outside of school honing my newly acquired skills. It was gratifying to challenge myself further and unleash my creativity. And when I got stuck—as I inevitably did—I sought out collaborators who could help brainstorm past the roadblock.

That is not unlike what I heard described by CTE students that I interviewed. In fact, my personal experience pales by comparison to theirs. Recently I was asked to showcase our Mechatronics & Robotics program to a visiting superintendent. We were both impressed by the projects we saw in process, and my guest indicated that he liked what he saw: “problem-solving projects of students’ own design.”

The “Electric Go Kart” is but one example. Sarah Byarski, Alex Hakim, and Jon Paul are three advanced Mechatronics students who are collaborating on this project that is truly of their own design, start to finish. They described the process that included initial concept, design, research, creating a parts list, investigating prices and brands for components that needed to be purchased; creating a test bench for electrical components (motor + battery +

speed controller); designing (using CAD) and fabricating custom parts (using the 3-D printer, CNC, and other advanced manufacturing tools), programming, and much more.

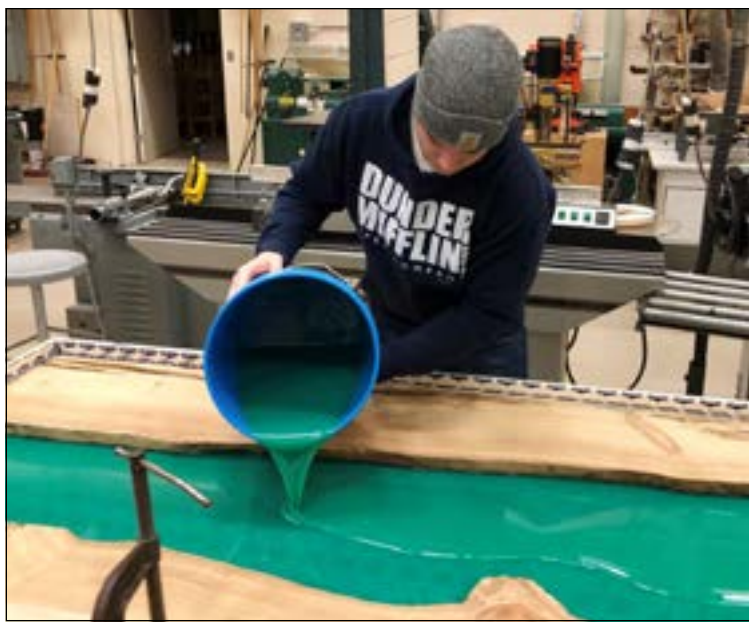
Was the first design the perfect design? No. And that is perhaps the point from which the greatest learning occurs. As Jon said, “We redesigned the back plate about 15 different times to be able to successfully hold more weight. The battery and the motor combined weigh about 30 lbs. and weight affects performance and battery life. We also needed to extend the frame at an angle which required applying math and physics calculations.” Alex added, “We are constantly encountering new challenges that we find both frustrating and extremely gratifying once we resolve them. We are more involved and excited because we have complete ownership of this project.”

What are the most important ingredients to a successful, group project? What are the biggest lessons learned? “Collaboration is key,” said Alex. Sarah added, “We’re all of value to each other; no one person knows everything. Patience, teamwork, and communication are extremely important.” “We’ve learned how to ask better questions, proactively think about what could go wrong, and reach out to other classmates to help brainstorm solutions to problems that our team alone cannot resolve,” said Jon.

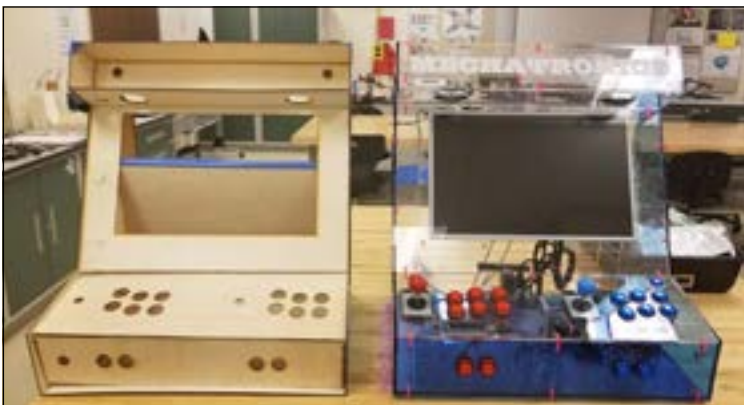
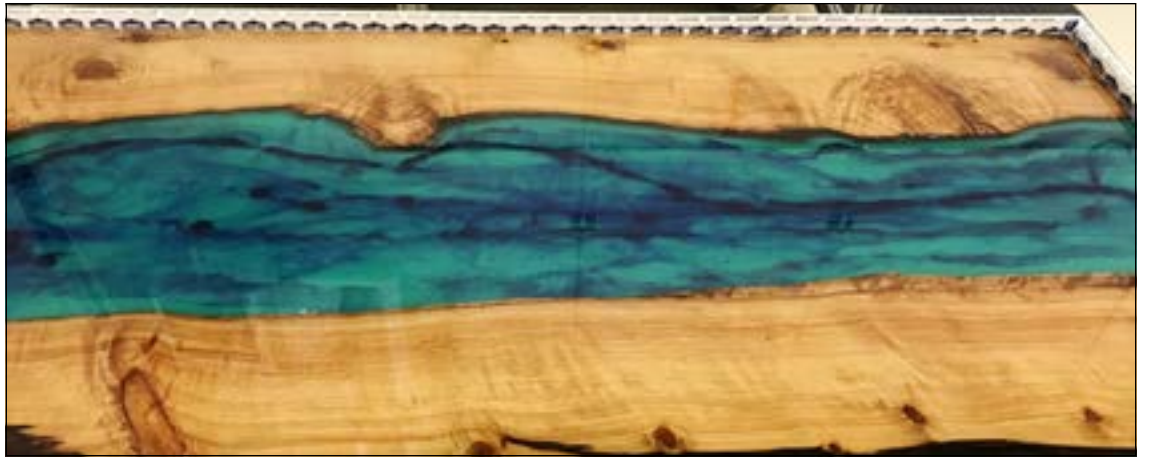
“Wow!” is what I thought to myself. This sounds like a list of highly desirable 21st Century learning outcomes and these intrinsically motivated students have clearly taken responsibility and initiative for their own learning. I’m proud to share this small sampling of theirs and other amazing student projects that I encountered in a day of discovery within just a couple of our CTE classrooms in Chippewa Valley Schools.



Seniors Sarah Byarski and Alex Hakim, aspiring engineers, collaborating on their capstone project.



Cameron Rowe is applying the second of many layers of a two-part, dyed, epoxy that is applied between two long “live edge” cuts of wood to create the effect of a flowing river. Followed by more layers of clear epoxy and lots of sanding with very fine grit paper, this table top will be combined with a contemporary, black metal base to create a truly unique dining table. With the epoxy alone costing several hundred dollars, Chippewa Valley Schools would like to thank J.B. Cutting for sponsoring Cameron’s project!



Alex Paich applied his skills by making a game cabinet. After research, Alex designed it using AutoCAD, made a 1/16” scale model from mat board; tweaked it; then made a full scale model using thin wood cut on a laser cutter (shown left) tweaked it some more; and ultimately the finished product (shown right) made from clear Plexiglas. A salvaged TV screen serves as the monitor; a Raspberry Pi (microcomputer) serves as the brain. Complete with LED lights, 3-D printed buttons, and USB ports, the cabinet offers the option to plug in controllers for up to 4 players. Alex said, “I like the freedom to pursue learning through a project of my own design, and this project gets me excited to come to school each day.” Since this is an individual project, what does Alex do if he can’t resolve a problem by himself? “You never get it right the first time, and each iteration helps me resolve challenges. But when I’m really stuck? Peer learning is what we’re all about in this class; we’re like a small, close family who support each other.



Luke Tokarz, MeKaila Carter, and Katie Courneya teamed up to take on a very ambitious, custom-designed, air hockey table. This project is presenting them with a multitude of questions and challenges: How many holes are needed on the top of the air chamber to create a surface upon which a hockey puck will float? How much air pressure and power? How do we incorporate a 25 cent coin slot and make it turn on and off? Luke said, “It’s a work in progress, but we’ve used everything from Inventor to design it, and 3-D printing for custom components like blower parts and the hockey puck.” They’ve needed lots of different tools too like a circular saw, jig saw, laser cutter, CNC (to cut the holes); they even had to learn how to apply Formica. “The coding alone took over a month,” said MeKaila who added that “This experience has been very powerful.” They all agree that this is, by far, their favorite class, but they don’t really think of it as “school” even though they have found the project to be much more complex and time-consuming than they ever imagined. Katie is already accepted to Lawrence Technological University to study mechanical engineering next fall and she said, “This experience has been the most awesome part of my preparation for college.” Luke Tokarz and MeKaila Carter are shown working on the electrical and mechanical components that will allow their air hockey table to function.

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# MAKING THE Connection TO Career Technical Education

Thursday, March 29, 2018

## Chippewa Valley Schools CTE: Where autonomous vehicle engineers are born!

**By Claire Brisson**

*Director of Career and Technical Education*

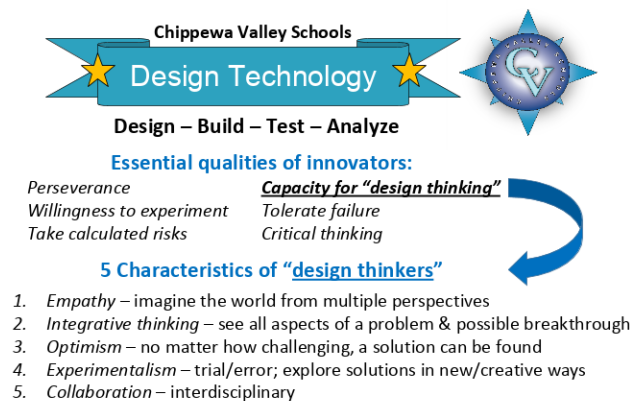
In business, measures of success may include innovation, the satisfaction of your customers and, of course, profitability. In education, our customers are our students, and our profitability might be measured, in part, by their success after they leave us. If we did our jobs correctly, our students will graduate prepared for the next steps. If we achieve optimum profitability, we will find that they left us with not just a solid foundation, but also knowledge and skills that gave them some advantage, and continued to be useful years afterward.

It is, of course, only our alumni, and those who continue to educate and/or employ them, who can provide that invaluable perspective that time and hindsight provide.

Last December, staff from the Michigan Department of Talent and Economic Development (TED), spent a day at Dakota High School (DHS) visiting 4 of our 14 CTE programs: Construction Trades, Woodworking & Cabinetmaking, Mechatronics & Robotics, and Design Technology. It made sense to also include alumni and industry supporters. I would like to share highlights from two of our alumni.

The program of focus is Design Technology, a CTE program that can be taken all 4 years and is often referred to as “engineering”.

For two decades, teaching it has been approached innovatively including a heavy emphasis on projects, fabrication, and exposure to advanced manufacturing technologies. It's notable that 3-D printing has been a part of this program all that time. As today's students advance, they are exposed to technologies like CNC machining, plasma cutting, laser engraving, welding, 3-D printing, and more, in a 3,000 square foot fab lab. Among the benefits, students gain the capacity for design thinking, perhaps best explained with this infographic:



What follows are selected highlights from interviews with Mandi Damman and Scott Herz from the class of 2003. Both completed multiple years of CTE Design Technology which culminates in a capstone course called Research & Development (R&D). In 15 short years, Mandi Damman has catapulted to becoming the Chief Engineer for Autonomous Vehicles at General Motors, and her former classmate, Scott Herz, is still her friend and colleague at GM and works as the Lead Test Engineer in the Battery Laboratory. They uniquely, and remarkably, travelled their career paths together.

First meeting at Seneca Middle School, they continued at Dakota HS, again at Kettering University—with co-op placements, eventually leading to full time GM employment—and along the way, completed graduate school at the University of Michigan together too.

**Q:** Did the CTE Design Technology program give you an advantage? Do you still use skills you learned here?

**Mandi:** Absolutely, it gave us a leg up! I really got my CAD skills here. We also created projects in the lab using tools like a scroll saw and drill press. I wasn't exposed to any of that until I came to this program, and because of that I'm the girl who knows her way around a machine shop; it was awesome.

At work, having such a good core, was really important. Even my handwriting is still drafting-like lettering.

There is so much that I go back to that I learned here that really set me up for success. We got so much out of our high school education, and I would have never, never chose engineering as a profession had it not been for this experience.

**Scott:** I agree. CTE is where you brought everything together and really developed your problem-solving skills. Just like in college when you would do a certain task, then have to show the pre-engineering work, ultimately give a pitch to your professor, and show the steps. In CTE, we learned to dive into a problem and figure out what's contributing to it and ultimately how to solve it.



Alumni (class of 2003) Scott Herz (Lead Test Engineer, GM Battery Lab) and Mandi Damman (Chief Engineer for Autonomous Vehicles, GM) with their high school CTE teacher, Scott Mitchell, who was selected as Dakota High School's Teacher of the Year.

If you're exposed to that early before you go to a university, the trades, or an apprenticeship, you can go all in.

I look at prints and 3-D drawings all the time and still feel like I'm in the classroom here. Being safe too, is something Mr. Mitchell, our teacher, really emphasized and still rings through my head. Safety is, of course, the most important consideration in the work I do at GM with high voltage batteries.

It's not obvious until you're in college, seeing somebody else learning something for the first time, and those who didn't have this high school experience are lost. And you're thinking, 'Didn't you have 4 years of engineering classes in high school?' And they say, 'No, we didn't do any of that.' So it didn't really hit home until college. “Absolutely,” agrees Mandi.

**Q:** Did the hands-on, fabrication projects help you? Did you better understand math and science as a result?

**Mandi:** Yes. Prior to the CTE classes, I didn't know why I was taking the math. I was generally pretty good at it, but I didn't care a lot about it; it was the simple question of “Am I ever going to use this again?” When I started seeing how it would apply to engineering, it made me much more interested. Then I wanted to learn what the teacher was presenting in science and physics classes.

What we were doing, [in CTE] with the projects and design-engineering challenges, all made sense from a physics standpoint.

Even as I was going through physics in college, I knew why we were solving problems. In CTE, we had a bunch of different challenges. We would design on the computer, and then actually get to build and test the design.

I would put so much effort into these projects, and then it was really exciting to see how they would do in testing and competition. There's a ton of that that I've been able to apply, certainly to college, and in my professional life and career at GM. The exposure to engineering concepts of Design-Build-Test is so important.

It has all translated very nicely into an engineering career where now I apply those same concepts—the math and science, and the same [design thinking] methodology—to vehicles.

**Scott:** As you work through projects, it's all about team work. To design something, then pass it on to a classmate to build, brings up the questions that need to be answered.

There is an iterative, back-and-forth communication and problem-solving process that takes place until you actually get the part that you need. Once you've achieved that, you can test it, make sure that it functions appropriately. Of course, when it doesn't, you continue the critical thinking process until you successfully achieve your goal.

The dual design and fabrication aspects of the courses here really helped me to understand how to write a procedure for somebody else to follow to do the work that I want done.

For an engineer, that translation into the real world and real parts is important to understand at an early stage. And in the world of work, it's all about the team, being a part of the team, understanding what your role is in the team and ultimately succeeding in that role regardless of whether you picked it or not. Your team needs you. Very rarely does the lone soldier succeed.

**Q:** Did CTE Design Technology prepare you for university studies?

**Mandi:** There were 5 or 6 of us that went through

the engineering program at Dakota HS who all went on to Kettering together. We were known as this 'group from Dakota' because we were so much further ahead in our CAD classes and we knew our way around the machine shop. We came in with the basics of engineering, and we knew so much more than students from other high schools.

**Scott:** I wanted to pursue my passion, which is the technical world and engineering. I decided that I wanted to go to Kettering because I wanted a smaller, engineering school where the student-to-teacher ratio was much lower.

I felt like that was what I had here—more face time and personal teaching time—which was important to me and very beneficial.

**Q:** How important it is to be a good collaborator and communicator in what you do?

**Mandi:** It's incredibly important. Being a good communicator and collaborator is really #1, maybe #1 and #2. A good engineer knows what makes a good design, what makes a bad design, how to manufacture things; it's kind of the price of entry. Then everything you can do above and beyond that, to make sure you're communicating with your team, collaborating with individuals that work for you and with you is a big thing; it's all about team work.

**Scott:** We work with people all around the globe. You and I might use words that we both understand, even slang, to get a point across, but when you translate that, you may not get your point across to the team in China, Italy, or Brazil. It forces you to create a communication style that might be a little bit slower, and choose words that are more precise.

**Q:** What advice might you have for younger students, especially young women?

**Mandi:** We know that around middle school girls start to shy away from math and science, despite the fact that they're very good at it.

Although young women may not necessarily see themselves in the CTE lab, if you're good at math and science—or even just interested, you don't have to be great at it—try it out and see if it's something you like.

There are so many different things you can do within engineering and related careers.

Give it a try and if you don't like it, you gained that experience which may help you somewhere else. But if you're great at it, then you just found something incredible you can do.

For both men and women, my advice is, give it your all in every situation. Get the most out of it, even if it's a class that's challenging that you don't necessarily love, or an assignment, or a co-op opportunity, make the most of it.

It's tough to tell sometimes how much you are learning and getting out of it at the time, but you'll always find ways to apply it later.

To the women, it was tough leaving here, going to Kettering, and starting as an 18-year-old girl in some of my co-op assignments, just to be myself. What I've learned now, be authentic, be you, it's the best way to go, and advice that serves both men and women well. Be yourself and work hard and you'll be successful. Take it all in.

Every one of these experiences is an opportunity to learn; even negative experiences. As you go through your education, being exposed to people, relationships, and teamwork, really immerse yourself and learn everything you can. You'll need it later and you'll be glad you have it.

**Scott:** Whatever you pursue, whether it's engineering, the trades, IT, or whatever it is, just give it your all.

Everyone has the potential to take information, harness it, and grow it into something. You just have to show up every day, be dedicated, and give it your all, and you'll do great. It all starts here.

**Q:** Final thoughts?

**Scott:** A powerful engineer is someone who knows the theory, can do the calculations, and then apply it and make it work. That is something—to be honest with you—that started here in this CTE program.

**Mandi:** To sum up my CTE experience in one word, it's opportunity. If it weren't for this, I have no idea what I would be doing. I can't say enough about how important this program is; it truly opened my eyes to engineering.

If it weren't for this program, I wouldn't be where I am.

So I'm super thankful for it, even for the friendships and the people...meeting my husband in engineering school as well as many great friends, and now, the great life that it has offered us. It all comes back to this CTE program, and the fact that I took a chance, tried it out and loved it!

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# MAKING THE Connection TO Career Technical Education

Thursday, November 3, 2016

## Chippewa Valley Schools' teachers mentor a new generation of educators

By **Claire Brisson**

*Director of Career Technical Education*

Test scores aside, one of the best measures of a program's effectiveness is the success of its graduates. Did students take life-long lessons with them after graduation? Did they feel prepared and confident for what came next? Did they gain practical, useful skills? These, and many others, are the questions of real importance.

The Teacher Cadet program, offered to senior students, is a year-long, two-hour, daily program of study that begins the preparation process for those who find the idea of becoming a teacher more than a little intriguing. This career and technical education (CTE) program is taught at Chippewa Valley High School by Becky Kiel, and at Dakota High School by Terri Kubiny. A hallmark of Teacher Cadet is that after some initial preparation in areas such as safety, ethics/professional responsibility, human growth/development, communication, applied learning, and much more, students will gain some actual "classroom" experience in one of our preschool through middle schools under the guidance of a cooperating teacher. This is the part of the preparation that our alumni will often cite as the most impactful. As CTE programs in our district go, this one is fairly young, insofar as following up with graduates is concerned. But the time has come to share some feedback from five alumni who graduated as early as 2011 and as recently as 2016.

Let's start with Morgan Bechtell (CVHS 2011) and Katie Carion (DHS 2011). Both are in their first year of teaching kindergarten. Morgan, who attended Central Michigan University (CMU), is now teaching in Phoenix, AZ, where she says her Michigan certification was accepted without having to do anything more. In 2011, we did not yet have an articulation agreement with CMU, so it took Morgan five years to complete her requirements to become a teacher, which was not uncommon. Students today, however, can shave as much as a year off of that process by earning two CMU credits for their Teacher Cadet experience which allows them to be placed in an education cohort at the university level much sooner.

Katie attended Oakland University (OU)—our first articulation partner—and even though OU required additional placement hours, with the classroom experience and the two credits earned from her high school Teacher Cadet program, she successfully completed her program of study in four years and now teaches at Woodland Elementary School in Troy, MI.

Both young women knew from the onset that they wanted to become teachers. And both say that the actual classroom experience in the Teacher Cadet program solidified their decision to do so. They learned

in high school to write effective lesson plans, to observe, and to use appropriate classroom management strategies. And they both came to realize that teaching is actually not just teaching; it involves so much more. As Morgan says, "I knew what was going on behind-the-scenes in the classroom, and gained insight into many activities that a teacher is required to perform in addition to lesson planning, lesson delivery, and assessment."

In addition to the important role their high school instructors played, when asked about a mentor who may have positively impacted them, they both identified their cooperating teacher from their classroom placement. For Morgan, it was Maureen McCaron at Erie Elementary—who, by the way, was her own, much-admired, first grade teacher—who set the standard that Morgan tries to emulate. As Morgan says, "I strive to be like her every day; having a caring, compassionate, and positive attitude with all of my students." One of the most significant experiences for Morgan in Ms. McCaron's classroom was seeing the positive influence her interaction with students had on their learning. Each day, Morgan worked with students to help them learn their weekly spelling words. Every Friday, Morgan tested the students and observed that, "Students were learning and understanding their spelling words and I saw my efforts directly having a positive impact on their achievement."

For Katie, it was science teacher, Mary Thompson at Ojibwa Elementary who made a big difference in her life as a mentor. And just like Morgan and Ms. McCaron, Katie had previously been a student in Ms. Thompson's class and says, "When I attended Ojibwa, I really enjoyed her lessons and her style of teaching." Even through college, Katie continued to volunteer in Ms. Thompson's science class, and Ms. Thompson continued to provide valuable insights, "many of which I incorporated into my student teaching experience." A lesson that Katie created in high school about how a magnet affects a compass, is one she was also able to use for an assignment in college. Katie still sees some of the students from her Teacher Cadet classroom experience who are now sophomores at Dakota High School.

Another alumnus who finds herself teaching now in Arizona is Jessica DeVriendt (DHS 2012). In her case, it's in fourth grade, not kindergarten. Unlike Katie and Morgan, Jessica had no idea what she wanted to do post high school. She was thinking about nursing, but the thought of blood made her uncomfortable. Her older sister suggested trying Teacher Cadet, and a great suggestion it turned out to be.

Jessica's cooperating teacher was Patty Robine, second grade instructor at

Cheyenne Elementary who she describes as "amazing!" Jessica remembers working daily, one-on-one with a low achieving student, helping her to learn numbers in expanded form. "One day, Ms. Robine mentioned that my student did so well on her math quiz that she earned an A! The extra help I gave her paid off. After this experience, I felt I could actually be a teacher," says Jessica. Another lesson that she learned from Ms. Robine that she incorporates into her teaching practice is that effectively communicating with parents is an important component of good student learning.

Jessica credits Teacher Cadet for solidifying her decision to become a teacher, and says, "I gained confidence in myself through the program and it was a big help during my college experience." She also did her student teaching in Chippewa Valley Schools at Mohawk Elementary, under the guidance of fourth grade teacher, Kelly Gendernelle. "I felt very lucky to be supervised by such a phenomenal teacher!" Jessica too, took advantage of the articulation agreement with OU which saved her both time and money. About teaching in AZ now she says, "This experience is exciting, challenging, and sometimes feels a little overwhelming, but I love what I am doing!" She misses her family and friends, but her older sister who made that life-shaping suggestion to enroll in Teacher Cadet, is also her colleague in the same district teaching sixth grade.

Not everyone who completes Teacher Cadet goes on to become a teacher, but as Katie Schroeder (DHS 2016) will tell you, it helped her to achieve her goal to be a positive role model for kids, and "it gave me so much more respect for teachers." She learned invaluable, lifelong lessons like, "not everything is smooth sailing" so she had to learn to communicate, listen and work better with her cooperating teacher, Christina Brewington, second grade teacher at Shawnee Elementary. She recalls now that "Those kids truly brought out the best in me and the impression they left on me allows me to continue to be the best possible version of myself today." The experience left such an impact, that Katie wrote a reflection called The Life Long Lessons I Learned as a Teacher Cadet posted online at: <https://www.theodysseyonline.com/life-long-lessons-learned-teacher-cadet>

One final alumnus we'd like to feature is Hannah Bastian (CVHS 2015) who is currently a sophomore at CMU pursuing a degree with majors in Secondary Education and English, with minors in Leadership and Speech. Speech was a natural choice because when she was in Teacher Cadet, she participated in the related career technical student organization (CTSO) called Future Educators Association (FEA) and competed in a speech competition at the 2015 FEA International Confer-



Hannah Bastian (left) is pictured with her teacher cadet instructor Becky Kiel in front of The White House in 2015 when she won third place at the FEA International Conference in Washington, D.C.

ence in Washington DC. She won 3rd place!

When she started Teacher Cadet, Hannah was undecided on whether she wanted to pursue psychology or education in college. Once again, it was her cooperating teacher—Paula Goosen, 8th grade English teacher at Wyandot Middle School—who turned out to be her stellar mentor. "Mrs. Goosen was a GREAT teacher who demonstrated lots of patience and shared much life advice about the profession of teaching with me. She was so inspiring and supportive that I began to envision myself as a teacher." In addition to taking full advantage of the articulation agreement with CMU, and having passed the Performance Readiness Exam while in high school—an exam that all Michigan teachers must take and pass—she was able to apply to the education program and be accepted as a sophomore.

Hannah also competed with 2,000 other applicants for one of the 40 CMU leadership scholarships, which she was awarded. As a Leader Advancement Scholar (LAS), Hannah has periodically posted a blog about her learning experiences. While there isn't room to reprint it here, this author was most impressed with the April 28, 2016 blog entitled "Let's Get Social" (<https://hannahsbastian.wordpress.com/2016/04/28/lets-get-social/>) where Han-



Katie Carion helps her kindergarten students learn the alphabet at Woodland Elementary in Troy where she now teaches.

nah reflects on the "Seven C's of Leadership." Everyone could benefit from her thoughts on the subject, especially during this very divisive, and heated presidential campaign.

Some final thoughts on Teacher Cadet from Hannah? The combination of all her experiences in the Chippewa Valley Schools' Teacher Cadet program have helped her to not only be well prepared for college, gave her confidence, but also propelled her on the path to becoming a

teacher, which she anticipates she will achieve in just four years of college. As Hannah says it best, "If I can do that at age 17 with my teacher's confidence invested in me, I will be okay at 22 when I finish my college program." We couldn't agree more!

Our thanks to our five alumni who shared their personal journeys with us, and who demonstrate that Chippewa Valley Schools' teachers do indeed mentor a new generation of educators!

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