

ATEA

American Technical Education Association

Journal

**52nd National Conference
on Technical Education:**

“Innovation through Continuous
Improvement of Technical Education”

Indianapolis, Indiana | April 15-17, 2015





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OFFICERS

Richard Wagner, ATEA President , Dunwoody College of Technology, MPLS, MN, rwagner@dunwoody.edu

Paul Young, ATEA Vice President , Northern Wyoming Community College District, Sheridan WY
pyoung@sheridan.edu

James King, Past President, Tennessee Colleges of Applied Technology, TBR Nashville TN, jamesking@tbr.edu

Bob Wallace, Executive Committee-finance, Tennessee Colleges of Applied Technology, TBR, Nashville TN, bobwallace@tbr.edu

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Southeast Technical Institute, Sioux Falls SD

Region 6: **Lin Zhou**,
Bates Community and Technical College, Tacoma WA

COVER PHOTO

St. George Street, Indianapolis, Indiana



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Managing Editor

Sandra Krebsbach, Ph.D. | Executive Director
skrebsbach@dunwoody.edu

Editor

Nasser Razek, Ed.D
University of Dayton, Dayton OH
nrazek@udayton.edu

Associate Editor

Jane Hildenbrand | Ivy Tech, Kokomo, IN
jhildenb@ivytech.edu

Executive Directors Emeriti

Odin C. Stutrud and Betty Krump

Editorial Committee

Susan J. Olson, The University of Akron, Akron, Ohio; Harry Bowman, Clermont, Fla.; John Glenn, Jr., Summerfield, Fla.; Ron Hutkin, University of Phoenix, Phoenix, Ariz; Dan Tomal, Concordia University, River Forest, Ill; Sandra Coyner, University of Akron; Q. Jensrud, University of Akron

Publications Guidelines

Publication guidelines for articles can be obtained at www.ateaonline.org.

Layout

Shelly Fitterer, Dunwoody College of Technology—*Journal* layout

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The American Technical Education Association (ATEA) was founded in 1928 and incorporated as a non-profit professional education association in 1960. In 1973 the national headquarters was moved from Delmar, New York to Wahpeton, North Dakota. In 2012 ATEA relocated to the Dunwoody College of Technology, Minneapolis, MN. ATEA is the only autonomous and non-affiliated international association devoted solely to the purposes of postsecondary technical education. ATEA is the leading association for the postsecondary technical educator with emphasis on professional development. Educators and individuals from business and industry come together at conferences to discuss the latest trends and developments in technology. The organization is dedicated to excellence in the quality of postsecondary technical education with emphasis on practical teaching ideas and best practices.

Fall/Winter 2014 | Vol. 41 No. 2

From The Executive Director



In October, ATEA introduced a new event, a Key Leader Meeting. The ATEA Board of Trustees held its fall meeting in Tacoma, Washington, on October 15 and on October 16 joined 75 Key Leaders in Washington Workforce Development. The *Journal* summarizes panels from the day long exchange on how to meet the need for trained workers for the Washington and American economy. The brief answer is “all hands on deck” with programs to

make that happen. Bates Community and Technical College, Ron Langrell, President, and Executive Director, Marty Brown, Washington State Board of Community and Technical Colleges hosted the event. Thank you Lin Zhou, Dean of Instruction, BCTC for chairing it.

The *Journal* reports on the keynotes of the successful Region 5 Conference hosted by Gillette College, Gillette, Wyoming, on October 9-10. Northern Wyoming Community College District supported the keynote speaker, Matthew Crawford, author of *Shop Class, Soulcraft: An Inquiry into the Value of Work*. He suggests that trade jobs may require more daily decision making and critical thinking than many jobs that require a bachelor’s degree. Matthew is a Senior Fellow at the University of Virginia at the Institute for Advanced Studies in Culture and owns a motorcycle repair and fabrication shop in Richmond, Virginia.

Region 5’s opening dinner was at the Durham Buffalo Ranch. The keynote was Mike Wandler, CEO of L & H Industries. He traced the history of his family’s global company to a welding shop in Gillette, Wyoming, where it is still headquartered. The *Journal* summarizes his comments and includes his chart comparing salaries of master welders and machinists to other professions. Photos of the conference are from the tour of Cloud Peak Energies, the Durham Ranch; and the events and breakout sessions at the conference. ATEA thanks Dean Jed Jensen for chairing and Tiffany Strain for organizing the conference.

The upcoming 52nd national conference is April 15-17 “Innovation through Continuous Improvement in Technical Education,” hosted by Tom Snyder, President, Ivy Tech Community Colleges and Co-Chair Sue Smith, Vice President of Technology and Applied Sciences. It will be at the Hilton Hotel and Suites in downtown Indianapolis. Opening reception and dinner is at the Indiana Speedway. Plenary sessions are on Centers of Excellence and Trade Adjustment Assistance Community College and Career Training grants. Online registration is on the ATEA website www.ateaonline.org. Early Bird rate is through February 19. Presentation proposals accepted through February 1.

Thank you to Dr. Nasser Razek, editor, and Jane Hildenbrand, associate editor, for the reviewed and refereed sections. Guidelines for publishing are included. We have added a section entitled “History of Technology.” Thank you to all contributors to the *ATEA Journal on Technical Education*.

All the best,

Dr. Sandra Krebsbach

president's letter



Congratulations to all the supporters of ATEA for a great Key Leader's Summit hosted by Bates Technical College in Tacoma, Washington and a fabulous Region 5 Conference hosted

by Gillette College of the Northern Wyoming Community College District. It's always energizing for us to come together as technical educators and meet new colleagues, renew old acquaintances and learn from each other. If you haven't been to an ATEA event lately, I encourage you to attend a regional conference and, if you can, join us for the national conference April 15-17 hosted by Ivy Tech Community College in Indianapolis, IN.

At Dunwoody College of Technology, we are concluding the festivities associated with our Centennial Year. For 100 years, Dunwoody has helped students achieve their dreams through technical education. And yet, the impact that we as technical educators have on student all across our nation and world doesn't always get the attention it deserves. Our graduates have

changed the world. That being said, it's always good to see career and technical education get more publicity, and it does seem like we're seeing signs from the media and politicians that technical education has part of the cure to what ails the current economic and educational landscape.

Case in point: in the October 2014 issue of Reader's Digest, there is an article titled "She's Lifting Cars and Spirits." The article is about Cathy Heying, a woman who had a remarkable vision to help people. At the church she served for almost a decade, she saw the impact that car troubles have on low income families. Often these families couldn't afford the repairs and would miss a job interview or not be able to get to their jobs. She decided to take on this challenge and seek out a technical education that would give her the skills she needed to help these families out. I'm glad she chose to attend Dunwoody, but to be honest, it could have been any college that offered the training she wanted. The point is: she recognized a need and realized that hands-on, technical training would help her reach her mission better than anything else.

Cathy earned an Associate in Applied Science degree in Automotive Service Technology and started a non-profit to help address the major stumbling block that transportation can be for low-income families. Today, The Lift Garage provides affordable car repairs to make sure families have access to transportation needed to get to jobs, manage childcare, attend healthcare appointments, etc. What a great example of how technical college graduates build better communities! They know how to find solutions and get things done.

I'm sure that inspiring stories like Cathy's can be found across the many institutions involved with ATEA. It's important that we share such stories of success. It's all too easy for us to focus only on the challenges we face. Let's also celebrate the successes!

The challenges are also important, of course, and why we need to continue to work together to share what's working, to keep abreast of what's changing in the industries we serve, and to advocate for the value of technical education. One thing we know more than any other type of educator is how quickly the knowledge and skills needed to be relevant – and excellent – in our fields change and progress. I continue to be impressed by how focused all of you are on making sure that your students are well-equipped to enter the workforce well-versed in the latest technologies and best practices. Keeping up on all that requires devotion and a true love of the subject matter you teach. And that transfers over to so many of our students. It's always a joy for me to meet technical college graduates who five, ten, twenty years after graduation still speak with great passion about the current state of their industry and what's looming on the horizon.

Your dedication to career and technical education is appreciated. Our work is critical to the continued success of this nation. We help students graduate to jobs and great careers. We provide skilled workers to the companies that are driving our economic engine. We educate students to have the skills and abilities for productive careers and meaningful lives. Our graduates build better lives, better communities.

Thank you for all you do and the countless lives you've changed and thank you for supporting this great organization.

Dr. Rich Wagner is President of the ATEA Dunwoody College of Technology, Minneapolis, MN
rwagner@dunwoody.edu

Invitation to 52nd ATEA National Conference on Technology

hosts

ATEA Message from Tom Snyder and Sue Smith

Ivy Tech Community College President, Tom Snyder, and Sue Smith, Vice President of Technology and Applied Sciences at Ivy Tech Community College invite you to join them at the American Technical Education Association's 52nd National Conference to be held in Indianapolis, Indiana

April 15-17 2015. They are very pleased to host this special celebration of ATEA as they welcome you to the beautiful and exciting City of Indianapolis.

The planning committee is working very hard to make this year's conference a memorable



Tom Snyder



Sue Smith

one that will not soon be forgotten. Informative sessions, standout presenters, opportunities to network with fellow experts in technical education and immersion into the booming manufacturing sector in Indiana are just a few of the reasons anyone affiliated with Postsecondary Technical Education should attend this conference.

The city of Indianapolis, with its world-class attractions and growing manufacturing sector, promises to be a great place to host this conference. "We have a great conference planned, and we are very excited to show off all that Indiana has to offer," says Snyder.

Start making your plans now to attend the 52nd National Conference on Technical Education in Indianapolis, Indiana April 15-17, 2015!

Register online www.ateasonline.org

Ivy Tech Community College



Ivy Tech Community College is the state's largest public postsecondary institution and the nation's largest singly accredited statewide community college system, serving nearly 200,000 students annually. It serves as the state's engine of workforce development, offering affordable degree programs and training that are aligned with the needs of its communities. In addition, its courses

and programs transfer to other colleges and universities in Indiana. It is accredited by the Higher Learning Commission and is a member of the North Central Association.

Ivy Tech Community College was founded in 1963 as Indiana Vocational Technical College in order to provide technical and vocational education in various industries with 13 regional campuses. In 1995 Indiana Vocational Technical College was renamed Ivy Tech State College, and in 2007 Ivy Tech State College was renamed to the Ivy Tech Community College we know today. Ivy Tech Community College now operates 14 regions with 32 degree granting campuses with locations in more than 75 communities. Students find personal attention close to home at Ivy Tech Community College. The average class size is only about 22 students, but it also offers the

benefits of a large institution in terms of accessibility. No matter where you are in the state, you should be no more than 30 miles away from an Ivy Tech campus.

In 1963 Indiana Vocational Technical College was created to teach only commerce, industry, agriculture, labor and general education. Ivy Tech Community College now prepares Indiana residents to learn, live, and work in a diverse and globally competitive environment by delivering professional, technical, transfer and lifelong education. Through its affordable, open-access education and training programs, the College enhances the development of Indiana's citizens and communities and strengthens its economy.

In addition, Ivy Tech's Corporate College offers local, affordable solutions for Indiana business and industry training needs. Corporate College is committed to providing Indiana businesses with customizable training opportunities or industry-recognized certificate training. Training through Corporate College is high-quality, flexible and proven with satisfied customers including Indiana's small businesses as well as its global Fortune 500 companies.

Ivy Tech Community College is a vital part of the success of the state of Indiana. Ivy Tech strives to live out its vision statement every day, "Changing Lives. Making Indiana Great."

schedule

2015 ATEA 52nd NATIONAL CONFERENCE SCHEDULE

Tuesday April 14 | Registration desk opens at 7:00-8:00 p.m

Wednesday April 15

8:00 am – 2:00 pm	Exhibitor set up for Trade Show
8:00 am – 4:00 pm	Registration
12:00 – 4:30 pm	Trade Show Opens
12:00 – 12:45 pm	Sponsored Lunch in Trade Show
1:00 – 4:00 pm	Plenary session I “What is the Role of TAACCCT Centers and State Funded Centers of Excellence in the Future of Technical Education”
	Plenary session II “What it takes to deliver on the Goals and Benchmarks of TAACCCT Grants.”
4:00 – 4:45 pm	Network Refreshment Break Exhibit Hall
5:00 pm –	Bus leaves for opening event
5:30 – 8:00 pm	Opening Event Indianapolis Speedway Reception and welcome by Tom Snyder, \ President of Ivy Tech Community College Dinner- speaker, Donald Davidson, Speedway Historian

Thursday April 16

7:00 am – Noon	Exhibit area open
7:00 – 8:00 am	Breakfast in the Exhibit Hall
8:00 – 9:00 am	“Innovative Partnerships” Moderated by Tom Snyder
9:10 – 9:55 am	Concurrent breakout sessions
9:55 – 10:10 am	Coffee break in the exhibit hall
10:15 – 11:00 am	Concurrent breakout sessions
11:10 – 11:55 am	Concurrent breakout sessions
	Exhibit area closes
12 – 1:30pm	ATEA National Awards Luncheon
2:00 – 4:00pm	Business and Industry Tours
4:30 – 6:00 pm	Glick Technology Center,-Ivy Tech North Meridian Campus.–tour and reception
6:30 pm	Back to hotel

Friday April 17

7:30 to 8:30 am	Regional Meetings
9:00-10:30 am	Keynote speaker TBA and ATEA Annual meeting
	Brunch
10:30 to 1:30 pm	Ivy Tech Concurrent sessions

Graduate/Undergraduate Credit offered at Conference

The University of Akron Teaching and Training Technical Professionals Program will be offering workshop credit for attendees at ATEAs National Conference. Participants will be able to earn one or two graduate or undergraduate credits. Those interested in earning credit must be registered prior to the start of the conference.

One can register by contacting Susan Petsche in our Outreach Office at susan3@uakron.edu or 330-972-8056. Cost per credit hour is \$150.00. All paperwork and follow-up assignments are submitted electronically.

Cost per credit hour is \$150. All paperwork and follow-up assignments are submitted electronically.

tours

2015 ATEA 52nd National Conference Tours

SMC



SMC is the leader in pneumatic technology, providing industry with technology and products to support automation based

on the guiding principle of “contributing to automation labor savings in industry.” With its

goal of ever more advanced automation, and using its many achievements as a base, SMC is developing high quality, high reliable products to contribute to automation in industry, as well as in familiar areas of everyday life.

Dallara



The Dallara IndyCar Factory is a joint venture between the IndyCar Experience and Dallara Automobili. It offers visitors the chance to explore

23,000 square feet of interactive and hands-on exhibits centered around the engineering and technology of the world’s fastest sport! When you visit, take a walk through a tunnel filled with the current IndyCar’s blueprints and design concepts drawings or sit down and relax in the theater

Dow Agro



Dow AgroSciences is committed to increasing crop productivity through higher yields, better varieties, and more targeted pest management controls. Our

products and services are designed to solve pressing crop production problems for our customers; boosting agriculture productivity to maximum sustainable levels to keep pace with the growing needs of our world’s rapidly expanding population.

Glick Technology Center



The Glick Technology Center is located at Ivy Tech Community College’s downtown Indianapolis campus at 2620 North Meridian Street. Ivy Tech built the center in the

1980s and began offering classes there in 1990. In 2004, the building was named after philanthropists Eugene and Marilyn Glick in gratitude of their \$1 million pledge to the College. The building houses the College’s advising center, student bookstore and technology programs. The building maintains advanced labs and high-tech equipment, allowing Ivy Tech students to stay on the cutting edge of technology.

keynote

Donald Davidson



The Indianapolis Motor Speedway’s Historian since January, 1998, Donald Davidson is believed to be the only full-time salaried historian at any race track in the world. Heard

annually on the worldwide Indianapolis Motor Speedway radio broadcast ever since being hired by the late Sid Collins in 1965,

the British-born-and-raised raconteur has written hundreds of magazine articles and newspaper columns, and made hundreds of television and radio appearances in addition to having presented a four-week course on “500” history for IUPUI’s Continuing Studies program every spring since 1986. He was inducted into the Auto Racing Hall of Fame in 2010 and is currently one of only two living who were never a participant. In 2013, he was inducted into the Indiana Broadcast Pioneers Hall of Fame.

Keynote at Opening Session Wednesday April 15, 2015



2015 TRADE SHOW INFORMATION FOR EXHIBITORS

- Activity:** AMERICAN TECHNICAL EDUCATION ASSOCIATION'S
*52nd National Conference on Technical Education
Trade Show*
- Dates:** Wednesday, April 15 –Thursday, April 16, 2015
- Location:** Hilton Hotel and Suites | 120 West Market Street | Indianapolis IN 46204
Hotel Reservations:
317-972-0600
- Hosted by:** Ivy Tech Community College, Indianapolis IN, Vearl Turnpaugh Associate VP for Career and Tech, Trade Show Chair.
- Contact:** ATEA for registration and exhibit questions
Dr. Sandra Krebsbach,
ATEA Executive Director
Dunwoody College of Technology
818 Dunwoody Blvd.
Minneapolis MN 55403
skrebsbach@dunwoody.edu Phone: 612-381-3315

Exhibit Booth Configuration and Costs:

(includes: piping, draping, 1 6ft table, 2 chairs and identification sign)

Standard 10' X 10' Booth

ATEA member	\$550
Non-member	\$850
Additional table	\$300 Member / \$400 Non-member

**Each exhibitor's name and address will be listed in the program.

**Exhibitors' Web sites will be linked to the conference Web site.

Exhibit Hours:	TUESDAY, APRIL 14	
	6:00 PM	Decorator Set up
	WEDNESDAY, APRIL 15	
	8:00 am – 12:00 noon	Exhibit setup
	12:00 noon – 5:00 pm	Exhibits open
	12:00 to 12:45	Get acquainted with the Exhibitors Sponsored lunch
	4:00 pm – 5:00 pm	Refreshment break with exhibitors
	THURSDAY, MARCH 21	
	7:00 am – 8:00 am	Hot Breakfast with Exhibitors
	10:30 am – 11:00 am	Break in exhibit area
	11:00 to 1:00	Exhibit teardown



ATEA 52nd National Conference on Technical Education TRADE SHOW

Conference Hosted by Ivy Tech Community College
Hilton Hotel and Suites, Indianapolis IN
April 15-16 2015

APPLICATION AND CONTRACT FOR EXHIBIT SPACE

Company Name _____ Telephone _____

Address _____ Contact Person _____

City, State, Zip _____ Title _____

E-Mail _____ Fax _____

EXHIBIT BOOTH FEES: Single 10X10 booths are \$550 for ATEA members and \$850 for non-members. Additional 10X10 booths are \$300 each for members and \$400 each for non-members. This includes piping, draping, table, chairs and an ID sign. Other furnishings must be provided by the exhibitor or the assigned decorator. Fern Decorating will provide the exhibitor packet upon completion of the contract.

Number of booths requested: _____

ATEA Members: 1 booth @ \$550 + _____ additional booths @ \$300 each = \$ _____

Non-Members: 1 booth @ \$850 + _____ additional booths @ \$400 each = \$ _____

BOOTH ASSIGNMENT: ATEA will assign booth numbers in the order the contracts are received. Exhibit contracts with payment in full will receive priority. If you have any special requests, please contact our office.

Description of product/service to be displayed: _____

BOOTH SIGNAGE: (for 7”X44” sign) _____

EXHIBITOR NAMES for ID BADGES: _____

AGREEMENT: Complete, sign and return this Contract with your payment or credit card information. Checks should be made payable to ATEA. Notwithstanding anything else in this agreement, if the exhibiting company is not accepted or space is not available, the payment will be promptly refunded by ATEA. Applications must be received no later than **March 15, 2015**. ATEA *will not* refund payments resulting from cancellation or withdraw by the exhibiting company after March 15, 2015

Signature _____ Date _____

Name (print) _____ Title _____

Website address _____

____ Check enclosed (payable to ATEA) ____ Please charge our **Credit Card** __ Visa __ MasterCard __ AmExp __ Discover

Card number: _____ Expiration date: _____

MAIL TO:
ATEA
Dunwoody College of Technology
818 Dunwoody Blvd
Minneapolis MN 55304

TRADE SHOW CONTACT INFO:
Sandra Krebsbach
info@ateasonline.org
PH: 612-381-3315

ATEA use only:	
Rcv'd date: _____	Total Paid: _____
Booths assigned: _____	

ATEA Board of Trustee Meeting and Washington State Key Leaders In Workforce Development Meeting October 15 and 16



Ron Langrell, ATEA Board member and President of Bates Community and Technical College, and the Washington State Board of Community and Technical Colleges

ATEA Board of Trustees with the support and coordination of Ron Langrell, ATEA Board member and President of Bates Community and Technical College, and the Washington State Board of Community and Technical Colleges held a Key Leader Meeting on Workforce Education on October 16, the day following the Board of Trustee meeting. The event was attended by 75 Washington State leaders in workforce development who shared their perspectives as presenters and networking.



Marty Brown, Executive Director of the Washington State Board of Community and Technical Colleges

Marty Brown, Executive Director of the Washington State Board of Community and Technical Colleges, opened the event with a greeting and a common call for workforce development to meet the needs of employers in Washington and the nation.

Members of the ATEA Board of Trustees started the day with a panel on their experience post recession--2008.



Dr. Shawn Mackey, Associate Executive Director, Mississippi State Community College Board

Dr. Shawn Mackey, Associate Executive Director, Mississippi State Community College Board, spoke of the job opportunities in Mississippi, particularly in the ship building industry.

Dr. Betty Reynard, President of Lamar State College Port Arthur, Port Arthur Texas, trains for the gas and oil industry as well as other sectors that have rebounded from the recession.

Dr. Paul Young, President of Wyoming Community College District, energy sector employers in need of welders and machinists are paying up to \$130,000.

Dr. Rich Wagner, President of Dunwoody College of Technology, Minneapolis, Minnesota, is in a state that is challenged to meet the needs of manufacturers. His college has multiple programs to move students through training. One of their programs is *Right Skills Now for Manufacturing*. It addresses the demand by moving students through 18 weeks of classes and 6 weeks of an internship.

Dr. Sandra Krebsbach, Executive Director, ATEA spoke from the ATEA perspective on the value of certificates and associate degrees to get into a career sector such as health care, get a job and then move up with a bachelor's degree. The student will have less or no debt.

Center of Excellence Panel

In 2005 Washington State Board of Community and Technical Colleges created the Centers of Excellence through a competitive application process, were codified into state statute in 2008 (WA HB1323) making Washington the only state in the country to have centers designated through legislation. There are 10 centers that serve as economic development drivers for the state's leading industries.



Mary Kaye Bredeson
Executive Director for the Center of Excellence for Aerospace and Advanced Materials at Everett College, Moderator

Mary Kaye Bredeson, Executive Director for the Center of Excellence for Aerospace and Advanced Materials at Everett College and ATEA Board of Trustee, moderated a panel of 4 of the Directors Washington State funded Center of Excellence. For the *Journal*, Directors provided their response to one of the four areas of expectations for COE's.

William Griffith, Director, Agriculture Center of Excellence, Walla Walla Community College responded to the Education, Innovation and Efficiency #3 Focus: The Agriculture Center of Excellence works with high schools and community colleges to create clearly defined pathways for students interested in agricultural careers. We work with instructors and teachers to make sure classroom content



William Griffith
Director, Agriculture Center of Excellence, Walla Walla Community College

is relevant and meets the needs of industry, with a focus on closing any skills gaps that exist. The center assists community colleges in developing transfer classes and degrees to four year colleges. We use social media and our website to feature programs and industry partners throughout the state and host a job board for employment opportunities.



Don Ferguson
Director, Allied Health Center of Excellence, Yakima Valley Community College

Don Ferguson, Director, Allied Health Center of Excellence, Yakima Valley Community College. The Allied Health Center of Excellence meets core expectation #3 by convening and facilitating quarterly Allied Health Deans and Directors networking meetings. Information related to training capacity, skill gaps, trends, and best practices particularly related to health care reform is disseminated. The Center supports efforts to confront common issues in health workforce education such as patient safety, accessing clinical placements, understanding emerging clinical roles, and developing interprofessional education and service learning opportunities.



Lin Zhou
Dean of Instruction BCTC and Chair of the Key Leader Day

Maureen Majury, Director, Center of Excellence for Information and Computing Technology, Bellevue College (not pictured), responded to Core Expectation #2: Collaboratively

build, expand and leverage industry, labor and community and technical college partnerships to support and promote responsive, rigorous, and relevant workforce education and training. Her center stays current on IT industry trends and emerging technologies by performing qualitative and quantitative research and resourcing the actual work of IT professionals through curriculum reviews, newsletters, presentations including webinars and live tapings, and reports and white papers. An example of recent research, they posed 5 questions to a team of IT professionals including: Boeing, 2 from Microsoft, F5 Networks, Northshores School District, Well Played Games and Eagle View Technologies. The results are in a report, "Building an IT Ready Washington: 2015 and Beyond." The report is available at

<http://www.coeforict.org/research/building-an-it-career-ready-washington-2015-and-beyond/>



Barbara Hins-Turner, Executive Director, Pacific Northwest Center of Excellence for Clean Energy, Centralia College

Hins-Turner, Executive Director, Pacific Northwest Center of Excellence for Clean Energy, Centralia College - responded to Core Expectation #4: Research, analyze and disseminate information related to training capacity, skills gaps, trends and best practices within the energy industry to support a viable new and incumbent workforce. The Center works closely with industry and research partners, such as Washington State University Energy Program, to publish best practices and industry trends. Barbara discussed the recently published labor market study which shows how industry needs have changed since 2008. She also shared publications such as the Customer Service Representative skill standards, which addresses how the position has changed with the evolving industry. Both publications are available online, along with 14 skill standards of other energy occupations.

<http://cleanenergyexcellence.org>



Tour of Boeing



Linda Strickland
Director WA Aerospace Joint Apprenticeship Committee



Ron Langrel
President Bates CTC

Region 5 held its Fall Conference in Gillette, Wyoming, October 9-10, hosted by Gillette College, member of Northern Wyoming Community College District.

Keynote: Mr. Mike Wandler.



Mr. Mike Wandler, CEO of L & H Industrial, was the Thursday night keynote speaker at the Region 5 Conference. He presented from a flatbed truck at Durham Buffalo Ranch. Mike spoke about the origin of L & H Industrial which grew from machining parts in their Gillette repair shop to a global business that

manufactures and repairs mining equipment. The corporate headquarters is in Gillette, Wyoming, with manufacturing and repair sites in Arizona, Canada, Mexico, Chile, and Australia with joint ventures in South Africa and India.

The Wandlers were machinists and welders. Leon Wandler started the business in 1964. Over time the family grew it in annual sales from \$20,000,000 in 1991 to \$100,000,000

in 2014. L & H Industrial upgraded the NASA Crawler Transporter that moved the space shuttles to the launch pad—this contract put them over the \$100,000,000 mark.

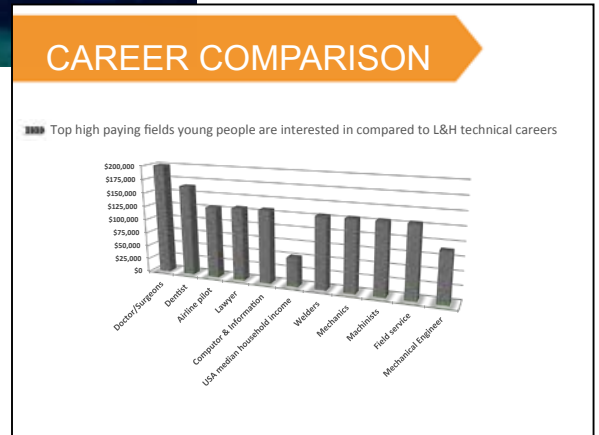
The chart from Mike’s power points shows L & H welders, mechanics, field service, and machinists earn \$130,000. This is in comparison to the national average annual incomes of just under \$50,000 and comparable or better than many professional salaries.

Mike Wandler issued a call to action

“ to change the attitude towards trades to get the best and brightest interested in manufacturing to fill our limited technical education capacity and for education to partner with industry to tailor training to ever changing needs.”

L & H not only supports technical education it champions it.

<http://www.lnh.net/>





Region 5 2014 Conference

Host: Gillette College
Gillette, Wyoming



Introduction to Engineering Design Class,
Project Lead the Way
Michael Schultz, Lyn Velle, Brandon Cone and Jami Cone.



Keynote: Matthew Crawford, Author, *Shopcraft and Soulcraft, An Inquiry into the Value of Work*



Matthew's summary of his keynote for the *ATEA Journal*

I graduated from a big state university in 1989 with a degree in physics, and moved to Los Angeles to look for work in the aerospace industry. I sent out dozens of resumes but I got close to zero response. After about four or five months, my savings gone, I found myself going around the parking lot of a home improvement store putting flyers on the windshields of cars to advertise my services as an electrician. This was work I had done throughout high school and college, starting as a helper when I was fourteen. The flyers said "unlicensed but careful." I got immediate response. There was more demand for my services as an unlicensed electrician than as a credentialed college graduate. I was glad to have something to fall back on, and went into business for myself.

The trades suffer from low prestige, and I believe this is based on a simple mistake. Because the work is dirty, many people assume it is also stupid. We've developed a dichotomy of knowledge work

versus manual work, as though they are two very different things. But that's a distinction that doesn't make a lot of sense to me. Say you're trying to diagnose why a car doesn't idle properly. That's not a trivial problem. And more generally I'd say that the kind of thinking that goes on in the various trades can be genuinely impressive, if we stop to notice it.

Conversely, we sometimes romanticize white collar work by presuming it has more intellectual content than it may turn out to actually have. A lot of white collar work gets dumbed down. There is such a thing as the electronic sweatshop, every bit as stultifying as the assembly line. By contrast, what a plumber, electrician, or auto mechanic does is fundamentally different from the assembly line. It can never be reduced to simply following a set of procedures. The physical circumstances in which you do those jobs vary too much for the work to get routinized. It always requires improvisation and adaptability. You feel like a human being, not a cog in a machine.

I never ceased to take pleasure in the moment, at the end of a job, when I would flip the switch. "And there was light." It was an experience of agency and competence. The effects of my work were visible for all to see, so my competence was real for others as well; it had a social currency.

Best,
Matthew Crawford, Author, Senior Fellow at University of Virginia and owner of Shockoe Moto, a motorcycle repair and fabrication shop in Richmond VA.

Region 5 2014 Conference



editor's notebook

Fall/Winter 2014

By Nasser Razek, Ed.D.

The role of higher education institutions is to create and disseminate knowledge. Through research and adopting the best practices of teaching, college instructors create knowledge. Dissemination part comes only when we are able to share our gained knowledge with colleagues. This happens on a small scale during local and regional meetings and conventions. However, a larger chance of sharing is manifested in publishing in journals and periodicals. This form has the potential to reach a larger audience surpassing geographical limitations. Adding the element of time, it outlives its authors.

In this issue of *The Journal*, Carrie Leopold and Steven D. LeMire share with us a new model for increasing enrollment of females in technical education. Touching upon a little bit of the history of technical education, Jenny Saplis introduces us to the role of two eminent figures of our field: Kate and William Dunwoody. From a different perspective, LeAnn Blevins tells her story of pursuing the dream in technical education. Marie Price also provides us with a Kristal Kleer manual for fostering partnerships rather than

wasting energy in competing against each other.

Following the examples of these innovative instructors and innovative researchers, I encourage all the readers of our *journal* to share their research knowledge, teaching skills, and innovative ideas through writing for *The Journal*. You may be wondering, "What do I need to do to submit my writing to *The Journal*?"

First, writers have to decide which section of *The Journal* their writing fall under. *The Journal* has four main sections that can harbor original writing pieces. 1) Reviewed or Descriptive Manuscripts: Supported by the literature in the field, this style is appropriate for presentations; best practices both in the classroom and the laboratory; technical information; and problems and solutions. 2) Refereed or Research Manuscripts: Offering an opportunity to share research results with colleagues, this section contributes to the accumulated body of knowledge of postsecondary career/technical education.

The Journal publishes a broad variety of research manuscript submissions including: reports of original research, literature reviews, theoretical manuscripts, and case studies. 3) Kristal Kleer: Presenting a quick take that explains, describes, or provides practical tips for an area of practice of technical education, this type is characterized by a straight forward style. 4) At Issue: distinguished with a topical focus, this section deals with timely subjects and contemporary issues that might interest technical education instructors and administrators.

Second, writers should contact one of the editors with their topic or completed piece. Once the editors receive the manuscript, it will go through a blind review process that ensures the manuscript is getting fair and objective feedback from the editorial board members. **Third**, when a decision is reached, writers will be notified with the recommendations of the reviewers. Once the manuscript is revised, it is resubmitted for the final review and awaits publication in the next available slot in *The Journal*.

Although, the submission process can be found on *The Journal* webpage, it can be easily summarized in the simple chart included below:



I leave you with certainty that you will consider writing for *The Journal*.



Nasser Razek, Ed.D. is the Editor of the *ATEA Journal*

A Model of Outreach to Increase Female Enrollment in Technical Education

Carrie J. Leopold, North Dakota State College of Science and Steven D. LeMire, The University of North Dakota

In 2010, the United States ranked 27th among developed nations in the number of graduates in science and engineering which has resulted in a shortage of qualified Americans in these jobs (U. S. Government Printing Office, 2010). An aspect of this shortage is the under representation of females involved in technical fields even though women make up nearly half of the U.S. workforce (Beede, Julian, Langdon, McKittrick, Khan, Doms 2011). If more females would consider careers in technical education, this untapped opportunity could help reduce our national shortage of qualified technical workers. What is unknown is the best practical way to inform female students about science, technology, engineering, and math (STEM) education and technical career paths. Having female students first consider, then enter a technical field is important to the competitiveness of our nation's economy. To address the need to better understand technical education outreach encouraging females to consider technical careers, was assessed the Girls Understanding & Exploring Stem Stuff (GUESS) project.

Literature Review

Over the last 10 years, women have been consistently underrepresented in both STEM careers and STEM undergraduate degrees (Beede et al., 2011). Although 57% of bachelor's degrees in all fields in 2009 were from women, according to the U.S. Department of Labor, Bureau of Labor Statistics (2011), women only make up approximately 31% of physicians, 34% of chemists, 26% of geoscientists, and 17% of chemical engineers. They also account for only 10% of civil engineers and 7% of electrical and mechanical engineers.

Strategies for Recruiting Girls into STEM Careers

Allison and Cossette (2007) propose strategies to engage girls in STEM which include creating a positive environment; building self-confidence; offering hands-on workshops; creating cooperative groups; applying practical applications of what they are learning; and offering role models, family support, and mentoring. Billington, Britsch, Carter, Freese, Regalla (2013) discuss seven proven strategies for engaging girls in STEM.

These strategies called the SciGirls Seven are: "(a) girls need to work collaboratively; (b) girls are motivated by meaningful

projects; (c) girls are motivated by a hands-on, open ended approach to learning; (d) girls need to be encouraged to develop their own way of critical thinking, (e) confidence increases with positive feedback; (f) confidence increases when the girls are challenged to critically think through problems; and (g) girls benefit from role models and mentors" (p. 7).

Girls often turn away from STEM education in middle school, but by providing collaborative, hands-on learning experiences with an emphasis on practical applications and social good, educators can engage girls' interest in STEM (Billington et al., 2013; Campbell, Jolly, Hoey, & Perlman, 2002). Research by Liston, Peterson, and Ragan (2008) for the Girl Scouts of the USA found that successful programs have the following common features: hands-on experiences, real-world based problems, "girls-only" time, and contact with professionals from the field.

Strategies for Building Confidence with GUESS

Self-efficacy consists of two components: readiness to choose a career and confidence (Lent, Lopez, & Bieschke, 1991). Lent and his colleagues describe the belief that one's readiness to choose a career stems from the belief in one's own abilities to be able to act on an action required to reach a specific goal. Confidence can be referred to as the strength of certainty of one's beliefs (Bogue, 2007). Confidence is critical in recruiting women into STEM fields. According to Allison and Cossette (2007), girls' confidence has to build before they will try something new whereas boys will try something new to build their confidence. The GUESS model can support this confidence growth by offering girls a chance to explore technical education in a nonjudgmental safe environment.

The GUESS Model Development and Implementation

Applying the SciGirls Seven strategies, North Dakota State College of Science (NDSCS) developed the Girls Understanding & Exploring STEM Stuff (GUESS) project to promote interest and address girls' concerns in STEM careers (North Dakota State College of Science, 2014). The goal of the GUESS project is to introduce young girls to emerging technologies (i.e., biotechnology, engineering, nanoscience, space science) and to gain a greater understanding and appreciation for careers in STEM fields.

The project addresses three priority groups identified as underrepresented by the National Science Foundation (NSF): female, Native American, and rural. Schools are invited to participate and each school in turn identifies the girls who will be selected to attend. This selection process results in three types of participants: (a) girls who have ambition also known as high flyers, (b) girls who have displayed potential and have demonstrated an interest in STEM courses, and (c) girls who are deemed at risk.

The GUESS project is designed for eight and ninth grade girls to attend a “day-at-the-lab” along with local school instructors. The project is facilitated by women professional mentors during school hours. Hosting the program on a school day rather than a traditional after school program offers the girls a feeling of being valued and makes participation very appealing. When the girls arrive, they are welcomed enthusiastically by women mentors and given pink shirts promoting unity and empowerment. The session begins with a large group opening activity designed to encourage conversation and break down any barriers or negativity associated with attending a “science day.” Throughout this program, many of the girls in attendance expressed being labeled a geek or nerd from their peers and teachers because they were chosen to attend. But throughout the day, the girls embrace these nicknames which instill confidence, pride, and an increased positive attitude toward STEM courses and careers.

After the opening activity, the girls are divided into groups of four and begin rotating through the lab stations which are all based on a particular focus (i.e., engineering technology, nanotechnology, space science, welding technology). During lunch the girls are able to ask questions about STEM careers and how to manage both family and work. This offers insightful opportunities to talk one-on-one or in small groups about these issues. The lab activities continue after lunch and the day concludes with another large group activity followed by a question-and-answer session to provide any additional information to the girls regarding their experience and future opportunities.

Purpose of Study

The purpose of this study is to evaluate the GUESS project and measure if a change in participants’ understanding of STEM, confidence in science, ability to succeed, perception of women engineers, expectations, and confidence in completing a degree after attending the session would increase.

Method

Forty-two female students participated in this study: 16 eighth-grade students (40%) and 24 ninth-grade students (60%). All the girls completed the survey for a response rate of 100%, however two students did not indicate their grade. This work was approved by an Institutional Review Board.

Instrument

The researchers developed the instrument based off the framework of Allison and Cossette’s (2007) work on confidence as well as Lent et al. (1991) strategies for increasing confidence. We also based derived these constructs based on literature from the SciGirls Seven (2013) strategies for engaging girls and Liston et al. (2008) girls scouts strategies and mentoring with female leaders. The constructs developed for this project focused on assessing six constructs: Understanding, confidence, Ability, Perception of Women Engineers, Expectations, and Confidence. Participants were asked to rate their level of agreement on 26 questions using a 6-point Likert-type scale with 6 = strongly agree, 5 = agree, 4 = slightly agree (all some form of agreement), 3 = slightly disagree, 2 = disagree, and 1 = strongly disagree (all some form of disagreement).

Procedure

In a test retest data collection method, the student participants were given a survey before participating in the GUESS activities. Students were given instructions to answer the survey questions as honestly as possible so as to give accurate feedback. They were asked to not answer a question if they did not understand it or did not know how to answer. At the end of the program the students took the same survey.

Results

The individual items within the construct were averaged. The reliability and correlations for each of the constructs are shown in Table 1. Overall the reliability for the instrument was good with Cronbach’s alpha ranging between .72 to .89. Cronbach’s alpha is one of the most widely used reliability statistics used today. Cronbach’s alpha is used to determine the internal consistency of items in a survey to gauge its reliability (Santos 1999). The highest correlation between the measured constructs was between expectations and perceptions with $r = .83$. Questions 14-17 were not included in this study as they measured personal enjoyment of the day.

Table 1: Correlation of Subscale Constructs and Measures of Internal Consistency for Pre-survey Data

Construct Number	Subscale Constructs	Question Numbers	C1.	C2.	C3.	C4.	C5.	a
C1.	Understanding of STEM	6 - 8						.72
C2.	Confidence in Science	9 - 13	.35*					.89
C3.	Ability to Succeed	18 - 21	.58*	.69*				.82
C4.	Perception of Women Engineers	22 - 25	.50*	.66*	.56*			.80
C5.	Expectations	26 - 31	.50*	.70*	.61*	.83*		.87
C6.	Confidence in Completion	32 - 34	.26	.64*	.50*	.51*	.67*	.79

*p < .05.

Table 2 shows the percentage of student growth (some form of agreement) for: understanding of STEM, confidence in science, and ability to succeed. The largest change in agreement was for Q7—I understand what careers are available in STEM—with 37.9% improvement. A dependent t-test was used to assess growth. The mean growth for understanding of STEM was 1.33, $t(40) = 9.08$, $p < .05$, $d = 1.42$. For confidence in science the mean growth was 0.29, $t(41) = 3.39$, $p < .05$, $d = 0.52$ and for ability to succeed the mean growth was 0.45, $t(41) = 4.31$, $p < .05$, $d = 0.66$.

Table 3 shows the percentage of student growth (some form of agreement) for constructs four, five, and six: perception of women engineers, expectations, and confidence in completion. The greatest change in agreement was for Q32—I feel confident that I will be enrolled in an engineering program in the next 5 years—with 31.5% increase. For perception of women engineers, the mean growth was 0.45, $t(41) = 5.3$, $p < .05$, $d = 0.83$. The mean growth for expectations was 0.55, $t(41) = 5.65$, $p < .05$, $d = 0.87$ and the mean growth for confidence in completion was 0.62, $t(41) = 5.52$, $p < .05$, $d = 0.87$.

Table 3

Finally, an important question about knowledge of technical careers was asked—I know about career opportunities in STEM (science, technology, engineering, math). The change in some form of agreement went from 64.3% (27/42) to 88.1% (37/42) for a growth of 23.8%.

Discussion

This study endeavored to evaluate the GUESS project and measure change in participants’ understanding of STEM, confidence in science, ability to succeed,

perception of women engineers, expectations, and confidence in completion after attending the session. Overall, there was a consistent increase across all constructs. However, the girls’ confidence level increase was most significant. The GUESS project builds girls’ self-esteem and develops their confidence to try something new. This is a critical aspect in getting girls to try something new like technical skills development as discussed by Allison and Cossette (2007). Having this skill is essential for future success and critical for recruiting girls into technical STEM careers.

The ability to succeed construct is based on the participants’ perceived success in a science program. There was growth in this perception after attending the GUESS project. Building confidence is a key component to this program. Increasing the perception of success is significant for girls entering and expanding the STEM workforce.

Table 2: Percentage of Student Growth for Constructs 1 – 3: Understanding of STEM, Confidence in Science, and Perception of Women Engineers

Question	% Some Form of Agreement		
	Pre	Post	Difference
C1. Understanding of STEM			
Q6. I understand what STEM is.	70.7	95.2	24.5
Q7. I understand what careers are available in STEM.	55.0	92.9	37.9
Q8. A career in STEM could give me the lifestyle I want.	72.5	92.9	20.4
C2. Confidence in Science			
Q9. I feel confident in my science class.	100.0	100.0	0.0
Q10. I feel confident ‘doing’ science.	97.6	100.0	2.4
Q11. I feel confident doing hands-on science activities.	92.9	100.0	7.1
Q12. I feel confident in my ability to succeed in science.	95.0	95.2	0.2
Q13. I feel confident in participating in science activities outside of school (ex. After school science club)	80.5	90.5	10.0
C3. Ability to Succeed			
Q18. I can succeed in a science program.	90.5	97.6	7.1
Q19. I can succeed in a science program while NOT having to give up participation in my outside interests (extra-curricular activities)	90.0	92.9	2.9
Q20. I will succeed in my science course.	92.9	97.6	4.7
Q21. I will succeed in other STEM (science, technology, engineering, math) courses.	89.7	97.6	7.9

The girls had over 97% agreement or higher on both the pre- and post surveys for the Perception of Women Engineers that should enter this male dominated field. The girls' perception of women engineers shows they feel women should enter this male-dominated field because women have equal rights and because it provides a feeling of independence and empowerment. They also saw "someone like them" being successful in an engineering career.

After attending the GUESS project, the female students showed a confidence increase for completing a college degree. By instilling this confidence and a feeling of empowerment as indicated in the Confidence of Completion construct that they can complete a college degree, they are more likely to not only apply for college, but succeed while they are there! This is a crucial factor to ensuring the girls will continue on a STEM career path as well as having an overall impact of potentially increasing female enrollment in technical education.

Limitations of Study

The main limitation of this study is that it is a self-reported study of one program with a limited number of participants. The data is self-reported and relied on the honesty of the participants. This study also consisted of only 42 participants. Future studies may address a larger number of participants. More generalizable results can be obtained through a multi-site study.

Implications for Practice

The hands-on safe environment to personally experience technical fields that the GUESS model offers had a positive impact on girl participants, measured through an increase in the constructs of Knowledge, Confidence, Attitude, Interest, Perception of Women Engineers, and Career Expectations and Interests. By increasing the knowledge of STEM careers, the GUESS project is showing promise as a model of outreach to increase female participation and enrollment in technical education.

Table 3: Percentage of Student Growth for Constructs 4 – 6: Perception of Women Engineers, Expectations, and Confidence in Completion

Question	% Some Form of Agreement		
	Pre	Post	Difference
C4. Perception of Women Engineers			
Q22. Women should become engineers because women should have equal rights	100.0	97.6	-2.4
Q23. Women should become engineers because it provides a feeling of independence.	95.1	95.1	0.0
Q24. Women should become engineers because it provides a feeling of empowerment.	90.2	95.2	5.0
Q25. Someone like me can succeed in an engineering career.	87.8	97.6	9.8
C5. Expectations			
Q26. A degree or certificate in engineering would allow me to obtain a lifestyle I want.	82.1	95.2	13.1
Q27. A degree/certificate in engineering would allow me to obtain a well-paying job..	95.1	100.0	4.9
Q28. I expect to be treated fairly on the job. That is, I expect to be given the same opportunities for pay raises and promotions as my fellow workers if I enter engineering.	100.0	97.6	-2.4
Q29. I expect to feel "part of the group" on the job if I enter an engineering career.	92.9	97.6	4.7
Q30. A degree/certificate in engineering would allow me to get a job where I can use my talents and creativity.	83.3	95.2	11.9
Q31. A degree/certificate in engineering would allow me to obtain a job that I like.	85.0	97.6	12.6
C6. Confidence in Completion			
Q32. I feel confident that I will be enrolled in an engineering program in the next 5 years.	63.2	94.7	31.5
Q33. I feel confident that I will complete an engineering program.	74.4	97.5	23.1
Q34. I feel confident I will complete a STEM (science, technology, engineering, and math) program.	79.5	100.0	20.5
Q35. I feel confident that I will complete a degree in college.	97.6	100.0	2.4

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Carrie Leopold, M. Ed.: Carrie Leopold (M.Ed., University of Mary – Bismarck, ND 2010) is the founder of the Inspire Innovation Lab, a nonprofit STEM education center located in Moorhead, MN. Carrie has been working with North Dakota State College of Science on the GUESS project for the past five years.



Dr. Steven D. LeMire: Steven D. LeMire (Ph. D., University of Wisconsin-Madison, 2005) is an associate professor in the Department of Educational Foundation and Research at the University of North Dakota. He teaches research and statistics.

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Articles submitted for publication in the *ATEA Journal* should address the quality and scope of postsecondary technical education and related programs. The topics should be of interest to postsecondary technical educators. Articles must be one of two types: reviewed/descriptive or refereed/research. The writing style of manuscripts in the two categories differs.

1. Reviewed/ Descriptive Manuscripts

This style is appropriate for presentations, best practices both in the classroom and the laboratory, technical information, and problems and solutions.

- a. Write in an active voice using present tense. A personal information writing style is best. Avoid jargon. Define specialized words or terms.
- b. Make your manuscript easy to read by using short words and short sentences. Journalism Magic Rule 13 applies—sentences should average 13 words in length
- c. When possible, develop your manuscript from the most important to the least important facts. Use headings and subheadings for clarity.
- d. Feel comfortable sharing authorship with a colleague. If you would like help finding someone who shares your interest, please contact Sandra Krebsbach, ATEA Executive Director at 612-381-3315 or skrebsbach@dunwoody.edu, Nasser Razek, Editor of the *ATEA Journal* at 330-285-4400 or nrazek@udayton.edu, or Jane Hildenbrand, Associate Editor at 765-459-0561, ex. 423 or jhildenb@ivytech.edu. Either person can suggest a member of the Editorial Committee to assist you.

2. Referred/Research Manuscripts

Research manuscripts offer an opportunity to share research results with colleagues and contribute to the accumulated body of knowledge of postsecondary career/technical education. Research manuscript information is intended to provide guidance, not limit submission areas. We encourage a broad variety of research manuscript submissions. Four types of manuscripts are accepted:

- a. Research studies are reports of original research and may include analyses of data that test hypotheses.
- b. Literature reviews are critical evaluations of already published work on a specific topic.
- c. Theoretical manuscripts introduce new, revised, or applied methods about postsecondary career/technical education to demonstrate how they might be used.
- d. Case studies present qualitative research to highlight and discuss a problem in practice and offer a possible solution.

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First, submit a 200 word abstract to one of the editors listed above. The editor will get back to you within a week with a decision about which section of the *journal* would be most appropriate for your manuscript.

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Submitted manuscripts will be reviewed by at least three Editorial Committee members and evaluated on the following points: Significance to postsecondary career/technical education/ Scholarly quality and style; Well organized and clearly written; Conclusions clearly drawn and supported; Represents a contribution to knowledge about postsecondary Career/Technical education. Manuscripts in either category may be:

- Accepted without revision
- Conditionally accepted pending minor revisions as recommended
- Rejected but invite resubmission with major revisions
- Rejected
- Technical Requirements
- Use the Publications Manual of the American Psychological Association (APA Publication Manual), Sixth Edition as the style guide.
- Length: Approximately 1400-2000 words, 7-10 one sided pages numbered consecutively
- Spacing and fonts: Double-spaced, including references, block quotes, tables, and figures consistently applied throughout the manuscript. Standard 12 point font throughout.
- Figures: Submit tables, figures, illustrations, and photographs as electronic files (jpeg, tif, or gif)
- Abstract: Approximately 250 words required with all refereed/research manuscripts.
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Catherine “Kate” Lane Patten & William Hood Dunwoody

By: Jenny Saplis



William Hood Dunwoody was born in 1841 to Scottish Quakers in Chester County, PA. Catherine “Kate” Lane Patten was born in 1845 to a leather merchant and his wife in Philadelphia. With the blessings of both families, William and Kate were married on December 8, 1868, in a Baptist Church in Philadelphia. William was a senior member of the flour merchant firm Dunwoody & Robertson, but his

interest in the sources of flour production and supply spurred the young couple to move to Minneapolis in 1869.

The Dunwoodys had forged a true partnership. Kate was considered to be a kind and gracious lady and she concerned herself with philanthropic and humanitarian concerns regarding women’s issues, healthcare opportunities, and the arts. William shared Kate’s interests just as she often shared in her husband’s interests in technical education as well as in his business success in the banking and milling industries. The following is a very brief summary of the Dunwoodys’ influence and legacy—if interested in a more complete account please contact the author:

Art: Kate was one of the first directors of the Minneapolis Society of Fine Arts. She was not only “faithful in attending all of the meetings but evincing in many ways a strong interest in the Society’s endeavors” (Minneapolis Morning Tribune, 1914). As president of Washburn, Crosby & Co. William was named to the Society’s building fund and made the first pledge of \$100,000 towards the \$500,000 goal. William bequeathed a trust of \$1 million to the Minneapolis Institute of Arts (MIA) for “the purchase of pictures and works of art” (Dunwoody, 1914) and Kate bequeathed 13 oil paintings from the Dunwoody’s residence to the MIA. Currently the MIA attributes over 2,150 pieces in its collections to the Dunwoodys.

Women’s Issues: As a member of the Women’s Christian Association (WCA), Kate initiated the donation of the Dunwoody’s first Minneapolis home to the organization in 1906. Women who lived in *Kate Dunwoody Hall* were provided safe and affordable housing while being offered assistance in finding educational opportunities and jobs. A

more modern structure also named *Kate Dunwoody Hall* replaced the first in 1966 as a co-ed living space and served many Dunwoody students.

Healthcare: William & Kate built Dr. Amos Wilson Abbott a state-of-the-art hospital in 1910 as a gesture of gratitude for the care Kate had received as a surgical patient. While the Dunwoodys owned the Dunwoody Building, Dr. Abbot was able to manage and used the 35-bed hospital for free. Abbott Hospital merged with Northwestern Hospital in 1970.

Technical Education: William bequeathed \$3 million along with detailed specifications for the foundation of *The William Hood Dunwoody Industrial Institute*, which was intended for the teaching of industrial and mechanical arts (Dunwoody, 1914). Kate pulled the first switch the start the machinery when the college opened in December of 1914. Kate bequeathed an additional \$1.5 million for the continued development of the college. By 1916, the enrollment had reached 300 in the nine Day-School trades: Automobile Repair & Construction, Building Construction, Cabinet Making, Drafting, Electrical Construction, Machine Shop, Mill Work, Printing, and Telephony. Day School spanned from 8 a.m. to 3:30 p.m. five days a week for around 18 months. Students spent half their time in labs of their chosen trades and the other half in classrooms dedicated to mathematics, drawing, science, English, and civics.

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Author As a Principal Instructor in the Arts & Sciences department, Jenny L. Saplis has been teaching for over eight years at Dunwoody College of Technology to students earning certificates, associates, and bachelor’s degrees. A life-long learner herself, Jenny is currently earning her Ph.D. in Work and Human Resource Education from the University of Minnesota. Saplis can be reached at jsaplis@dunwoody.edu.

Technical Education: A Field of Dreams

By: LeAnn Blevins

As a baseball fan, I understand the draw of the game, the magic of its history, the feeling of excitement the crack of a bat can elicit in a true fan. In fact, my favorite movie is *Field of Dreams*. As an educator in the Tennessee Colleges of Applied Technology (TCAT) system, I believe in the value and promise that technical education has to offer today's workforce. Yet I never would have guessed that a family trip involving baseball would have provided me a history lesson in technical education.



My family visited a park in Ohio that includes a working farm established in the 1830's. While there, we wandered into the farm's workshop, where a retired secondary "shop" teacher was demonstrating some of the work done in the 1800's and 1900's. The gentleman used a foot-powered lathe to make spinning wooden tops for the kids, and mentioned that among the other things he could make was a 6" baseball bat. So being the baseball fan that he is, my young son requested a bat, and our history lesson in technical education began.

The next day, on our return trip home, we stopped by The Louisville Slugger Museum and Factory in Kentucky to tour the facility. The tour started with a story of how a furniture maker's son first made bats for a friend in 1884, using a foot-turned lathe. This skill was demonstrated with a lathe that had been converted to steam power, and then eventually electricity. In fact, hand-turned, electrical and specialized lathes are still used to make special edition souvenir bats even today.

As we walked through the factory observing the production process, we came to an area full of computer numerical control (CNC) lathes which, we were told, the company began

using in 2002, mainly because they were the most modern technology available. The machines can make a bat every 50 seconds, or some 300 bats a day, including bats with varying lengths and weights. The machines are operated by only the most experienced bat makers in the company.

I was familiar with CNC lathes because the TCAT system offers machine tool training, including the use of these machines. As I stood watching the modern lathes whirl and bats emerge from what the company calls billets, a 37 inch long and 2/75 inch diameter piece of wood, I realized that I was observing a lesson in technical education and the development of a skillset. Intertwined in that lesson was the sport I love, baseball.

It seems to me that for years, technical education was seen as the dirty jobs that no one wanted any longer. Thanks to people like Mike Rowe, society is realizing that we have a shortage of people with many important technical skills, and that we will always need people with the skills that technical education provides. Those skills, whether long-standing or emerging technical advances, provide opportunities for growth to our citizens, our companies, our country.

I once heard a student say that everything around us was produced or operates because of skills obtained through technical education. I remember thinking at the time how profound her statement was. And because of a family trip, I can say that two things that have greatly affected my life, baseball and technical education, are more connected than I could have ever imagined. Perhaps, like those experts who work at the Louisville Slugger Museum and Factory, technical education provides our students their own "Field of Dreams."



LeAnn Hale Blevins, C.A.P.

Grants Coordinator, Tennessee Colleges of Applied Technology, Tennessee Board of Regents, 1415 Murfreesboro Road, Suite 314, Nashville, TN 37217

From Competition to Collaboration – A Practical Guide to Developing Partnerships

by Marie Price, MS, Ed.S, North Idaho College

The ability to compete is at the core of any successful business. In the education arena, competition for students has grown from local to national and even international, as technology creates a global marketplace. How can technical education prosper in this ever evolving landscape?

As leaders in solving workforce issues, technical educators can facilitate collaboration among competitors for mutual benefit. Examples of collaboration can be found in industry advisory committees and in successful grant proposals that address industry sector needs. North Idaho College received two US Department of Labor TAACCCT grant

awards recently by bringing competitors together to define common needs and develop mutually beneficial solutions.

Collaboration among competitors brings a number of advantages. These include developing a common voice for greater influence, increasing visibility to attract funding, legislation or media attention; and leveraging resources to tackle big issues. However, partnerships among competitors can be difficult to develop. Competitors are inclined to keep their distance from each other, so as to keep their trade secrets and plans to themselves. Scarce resources and organizational barriers may create an environment of fear and siloed thinking. Bringing partners together requires trust, respect, transparency and persistence. Here are some tips to get started:

Positive personal regard. Underlying collaborative relationships is an attitude of cooperation and the desire to develop win-win opportunities. Unconditional personal regard will set the stage for the trust and respect necessary to create a safe space for competitors to work together.

Identify the common pain point. Become aware of the workforce and economic issues in your community and region. Reach out to business and organizations that can help identify the training and education issues needing a solution that you could provide. Participate in associations and other relevant organizations; read newspapers, blogs and online articles; join pertinent online groups such as Linked In. Listen to what business and community leaders are saying.

Identify the stakeholders. Once an issue becomes central, identify the stakeholders who are associated with the issue. Who has the problem and who could potentially have a solution? Who is bringing attention to this issue? Create a list of potential partners.

Start small. From your list, identify a few key stakeholders to begin with. Who do you have a positive relationship with? Who has respect for your organization or institution? Check with others at your organization for relationships with key prospects. Identify those that are most likely to support a partnership. The biggest voice may or may not be the best stakeholder to begin with; use sound judgment. Bringing the right individuals to the table up front ensures the best chance of success in getting collaborative partnerships off the ground.

Begin with a short initial meeting. Bring together a small group of key stakeholders. When inviting, let the prospect know the purpose of meeting, who will be attending, what issues will be discussed, intended outcome, and the importance of their participation. Give them questions to ponder in advance; ask for input. Provide food or beverage.

Share the vision. From the initial meeting, paint a picture that will incentivize key stakeholders to see the benefit of working together. Help them realize how the pain point is common among stakeholders and the ability to overcome and succeed requires collaboration. Help them understand the benefit to participate.

Ask questions, listen and take notes. Identify key issues and common goals. Create a to-do list at the conclusion of the meeting. Agree on next steps, timeline and initial roles. Consider funding and resource needs. Identify additional partners to bring to the table as well as potential barriers to the partnership.

Create a diverse team. Successful partnerships are driven by the right people at the table. Ensure there are diverse talents that complement each other. Critical mass is important. Too many people can stall an initiative, too few will kill it. Gain support from the top of the organization for this endeavor.

Create a Plan. After the first few meetings, consider the following: Is more listening required before an action plan and strategy is developed? Are the partners

on board? Who else should be invited to participate? What resources are necessary to develop and sustain the partnership? Is their organizational support to participate? What obstacles and barriers have come up?

Leverage the Champion. Often, someone will emerge as the as the champion for the cause, the participant with interest and enthusiasm to lead the partnership and/or get things done. Their willingness and ability to engage is more important than their title. Give them assignments from the to-do list. Let them shine.

Develop and maintain a winning partnership. Solid partnerships include the following characteristics: clear mission, objective and goals; commitment from each partner to the collaborative effort; willingness to commit time and energy to achieve the objectives; relationships built on trust and respect; an equal voice for each partner; willingness to bring resources to the table; support from each partner organization's leadership; a benefit for each partner, short or long term.

Continue to bring partners together. As the partnership grows and an action plan is developed, ensure partners can commit resources and time into the collaboration. Establish a schedule to reconvene. Identify who will facilitate assignments and follow up. Go after small successes first. Whittle away on the to-do list and keep the partners updated on progress. Create a Linked in Group, SharePoint or other means to stay connected.

Formalize the partnership with written agreements. Once a partnership has been established, consider formalizing for sustainability. Create a name for the partnership and determine how it will operate. Is it an alliance, a board, a committee? Are by-laws, memorandum of agreements or other legal documents (such as 501c3) necessary? How will funding and resource sharing work? Anything involving money should be accompanied by legal documents.

Constantly readjust. Keep apprised of project happenings. Not everything will go according to plan, and individuals involved in the partnership may change. Be persistent and tenacious. Readjust as needed.

Celebrate Success. Plan events where the partnership successes can be celebrated. Go for an early win to prove that the partnership has merit. Informal events such as after-hours gatherings or potlucks (anything around food) will help develop relationships. Schedule a regular gathering where partners can get to know each other better.

Accept challenges and failure. Collaborating with competitors is a bumpy road. Mistakes and failures will happen. If something goes awry, regroup, figure out what happened, and learn from the experience. If the wheels fall off, consider dissolving the partnership. Not every partnership or collaboration will succeed.

Know When to Dissolve. Partnerships have a life cycle. Some sustain short term, some long term. Discuss the future of the partnership with the team. Consider dissolving when goals are met; timelines are complete, resources have vanished, or barriers are insurmountable. BUT don't give up if there are new goals, timelines, new issues or potential resources to leverage.

Know when to say no. Not all opportunities for collaboration or partnership are a good idea. With limited resources and scope, it is important to know when not to participate. Consider the following: Is the partnership focused on issues outside your mission? Are the partnership goals and objectives unclear? Is there a lack of organizational support for the partnership? A lack of agreement on roles, responsibilities, operating principles, funding distribution? A lack of mutual respect, integrity or trust? Does the outcome favor one party over others? Does the collaboration siphon critical resources, compromising the ability to achieve your core goals and objectives? If so, steer clear.

Technical education leaders face the responsibility of navigating the new economy and developing educational opportunities to respond to industry need. The acceleration of change in society and in the workplace produces challenges that need to be addressed on a broad scale. To succeed at this level, to tackle common problems and develop innovative solutions, competitors must learn to collaborate. Developing partnerships with competitors is both challenging and rewarding. Study successful partnerships and determine how to emulate. With patience and persistence, opportunities to grow through collaboration will emerge.



Marie Price, B.A. Seattle University; M.S. University of Montana; Ed.S. University of Idaho; is the Director for Workforce Training and Community Education at North Idaho College

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