

### WORKFORCE INNOVATION & PARTNERSHIPS



54th ANNUAL ATEA NATIONAL CONFERENCE MARCH 15 - 17, 2017 SHERATON MUSIC CITY HOTEL NASHVILLE, TN

PRESENTED BY



3	Executive Director Column	Sandra Krebsbach, Ph. D.	
4	President's Letter	Dr. Paul Young	
4	ATEA Board Member News	James King, Elected to Chair of the Council on Occupational Education	
5	<b>Executive Committee Nominations</b>	Dr. Bryan Albrecht, Sue G. Smith, and Mary Kaye Bredeson	
6	Board members in Washington	Sue Smith and Bryan Albrecht	
8	Board of Trustee Meeting	Mid-Plains North Platte, Nebraska, October 5 and October 6, 2016	
9	President's Roundtable	2016 Region 5 President's Roundtable	
10	2016 Region 5 Conference	Region 5 at Mid-Plains Community College, North Platte Nebraska	
12	12 ATEA 2017 National Conference "Nashville Live, Workforce Innovation and Partnerships		
		Letter of Invitation from James King	
		Introduction of Co-Chairs	
		"Nashville Live, Workforce Innovation and Partnerships"	
		Schedule at a Glance	
		Trade Show registration form	
16	Reviewed Article	"Manufacturing Skilled Labor and the Salary to Education Expense Ratio" By: E.J. Daigle III, Dean of Manufacturing at Dunwoody College of Technology in Minneapolis, Minnesota	
19	ATEA Membership Information	ATEA map and Regional Conferences	

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### **REGIONAL PRESIDENTS**

Region 1: Dr. Jon Connolly

President, Sussex County Community College, Newton NJ

Region 2: Gene Dudley

Director of Career and Technical Education Alabama Community College System, Montgomery AL

Region 5: Dana Wolff

Southeast Technical Institute, Sioux Falls SD

Region 6: Lin Zhou,

Bates Community and Technical College, Tacoma WA

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### **Publications Guidelines**

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

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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 2016 | Vol. 43 No. 2

### From the Executive Director and Managing Editor



The ATEA Journal reports on the outstanding Region 5 conference that celebrated the everyday super heroes who are technically trained and keep the heat, water, and lights on as well as switching the trains and moving Walmart groceries through North Platte, Nebraska. Thank you Mid-Plains Community College. The Presidents' Roundtable and ATEA Board meeting that preceded it are covered as well.

You are invited to Nashville for the 2017 ATEA National conference March 15-17, at the Sheraton Music City Hotel. It is an extraordinary opportunity to learn "first-hand" about industry, government and education partnerships from the host-Tennessee Colleges of Applied Technology and other systems and collaborations.

ATEA President Dr. Paul Young's column announces the ATEA succession plan for the next four years. Again, ATEA is positioned for the future with the leadership beginning with Dr. Bryan Albrecht, the next ATEA Board of Trustee President and President of Gateway Technical College, Kenosha, Wisconsin. Sue Smith Vice President, Technology Division, Ivy Tech is ATEA 1st Vice President and will become president in 2019.

In 2017 will be a time to "Rally for Technical Education," a quote from Dr. Jon Connolly, President of Sussex County Community College, Newton, New Jersey, and ATEA board member. If manufacturing production and assembly grows in the United States, technical education needs to step-up its efforts to train the workforce. Dr. Connolly will be hosting an ATEA Region 1 conference in the northeast region on October 18 and 19, 2017. Raritan Valley Community College will be a partner and the site of the conference. ATEA founded and incorporated in Region 1.

ATEA has identified a city and region that is experiencing the sudden and significant need for training, Truckee Meadow Community College, Reno, Nevada. There are over 50,000 new jobs in high desert. Switch Data Storage facility and Tesla's Gigafactory both solar powered are building the largest facilities in the world. ATEA will be hosting a members' only event at Truckee Meadow Community College, Reno, Nevada, on November 10 and 11, 2017, to learn how they are responding to training needs that includes thousands in industrial maintenance jobs.

Thank you for your membership and participation in the American Technical Education Association.

Sandra Krebsbach, Ph.D.

# president's letter



December and January is the time when we think about transitions: One year is ending and a new one is about to begin. For those of us that work at schools, colleges and universities the fall semester

is growing to a close. At my college final exams are wrapping up and faculty and staff are doing their mad dash to get grades in before we close for the holidays.

It is hard to believe, but my term as ATEA President is drawing to a close as well. We will elect a new executive team when we gather in Nashville in March and I will officially turn over the reins to Bryan Albrecht on July 1st.

I'm very happy to be able to announce the Executive Team's recommendation for an officer slate for the two-year period July 1, 2017 to June 30, 2019. Rich, James and I all agree that these individuals will provide us with great leadership as we look to the future:

President - Bryan Albrecht
First VP - Sue Smith
Second VP - Mary Kaye Bredeson
Treasurer - Bob Wallace
Past President - Paul Young

Bryan, Sue and Mary Kaye have already been working hard together with Rich, James, Bob, Sandra and I on future goals for the organization. Over the past five years we've been able to stabilize the organization and our finances, and now the time has come to take things to the next level.

We need to move from being a subsistence organization that depends almost entirely for revenue from our annual conference to cover each year's operating expenses, to a more stable funding model that will provide enough resources for us to continue to build the organization and to continue to build our brand as the national dialogue about technical education moves to the fore. To that end, we are seeking to leverage our outstanding awards program by attracting a corporate sponsor for each of the award levels. To begin we are actively pursuing a sponsor for the National Technical Student of the Year and are reaching out to candidate firms with sufficient resources to make a three year commitment to the ATEA. This is a lot of work and I really appreciate the help that Rich, James, Brian, Mary Kaye, Sue, Bob, Sandra and others are providing to this effort.

I am so proud to have been able to serve as ATEA President. This organization has meant so much to me and to the colleges I serve here in Wyoming. I look forward to continuing to work with all of you to strengthen technical education in all of our cities and towns and advocating for the importance of what we do in our state houses and in Washington.

Happy New Year to you and your family and also all the great folks you work with at your school.

Wishing you the best for 2017.

Paul Young President, ATEA

### ATEA Board member election to the Chairman of the Council on Occupational Education.

James King, Tennessee Board of Regents vice chancellor for the Colleges of Applied Technology, on November 23 was elected chairman of the Council on Occupational Education, the national accrediting agency for postsecondary occupational and technical career education institutions.

"It's an honor to be elected chair of an organization that demands accountability of its institutions," King said. "The 45-year relationship the Tennessee Colleges of Applied Technology have had with COE has assisted in making the Tennessee Board of Regents system a national model in postsecondary career and technical education."

TBR Chancellor David Gregory said King's selection is well deserved. "Vice Chancellor King has helped make the Tennessee Colleges of Applied Technology a national model for technical education. They've been recognized as such by Complete College America and by Bill Gates. James will do an excellent job as chair."

### **Executive Committee Nominees**

At the March 15, 2016 the Board of Trustees meeting, will vote on the nominations for president, 1st and 2nd vice presidents who will succeed to the presidency and other vice president position on the Executive Committee. The president and officers will be sworn in at the ATEA Annual Meeting on March 17, 2016. The term of office is effective at the annual meeting. The slate of officers are:



President of the American Technical Education Association 2017-2019: Dr. Bryan Albrecht, President of Gateway Technical College, Kenosha, Wisconsin

Dr. Bryan Albrecht serves as the President and Chief Executive Office for Gateway Technical College. Located in Southeast Wisconsin, Gateway provides innovative strategies to support student success, community development and

workforce solutions. Under President Albrecht Gateway has established a national leadership position in the development of business and education partnerships. Gateway was founded in 1911.

Bryan's board service includes: the American Association of Community Colleges, National Manufacturing Institute Board, Biopharmaceutical Technical Institute Board, the National Center for Occupational Research and Development Board. He is the past board chair of the American Career and Technical Education Association and founder of the National Coalition of Certification Centers (NC3).

He has testified before the U.S. Congress on workforce issues and recently recognized at the White House by Vice President Biden on behalf of the America Association of Community Colleges for Gateway Technical College's Bootcamp program. Dr. Albrecht has been recognized as a Distinguished Educator by the International Technology Education Association. Bryan holds Bachelors, Masters and Education Specialist degrees from the University of Wisconsin-Stout and a doctorate degree from the University of Minnesota. He hosted the 2015 Region 3 conference at the S C Johnson Center for Innovation, Gateway College.



1st Vice President and President 2019-2021: Sue G. Smith, Vice President for Technology Division, Ivy Tech Community Colleges, Indiana

Sue Smith has over 25 years of experience in academic and workforce development. She is recognized by Cummins and other major corporations in Indiana for connecting industry to Ivy Tech workplace skills and certificates. Her Technology Divison was awarded an NSF grant "Leadership Capacity Building for Manufacturing and Manufacturing Related Programs. This enabled the entire division to go through comprehensive training. The participants in the 3rd cohort presented at the 2015 ATEA National Conference 1st Plenary session held in Alabama. Before coming to the Ivy Tech President's Office in 2014 she was the Ivy Tech Corporate Executive for Advanced Manufacturing from 2010 to 2014. From 1994 to 2010 Sue served as the Executive Director of Workforce and Economic Development at Ivy Tech, Columbus, Indiana, where she developed apprenticeship programs, participated in the AMTEC program led by Toyota, and, among other accomplishments, supervised the Master Black Belt and delivery of Lean Six Sigma. Her leadership with ATEA includes co-chair of the 2014 ATEA national conference in Indianapolis.



Vice President: Mary Kaye Bredeson, Executive Director of the Center of Excellence in Aerospace and Advanced Manufacturing, Everett, Washington

Executive Director Bredeson's career path is exemplary of the ATEA mission. She started in law enforcement as a police officer, moved to Cisco Networking through a certificate program at a nearby community college. She began to instruct

for the Cisco Certified Instructors Academy at Seattle's largest corporate IT departments including Boeing and AT&T executives. Mary Kaye was hired as Program Manager at Edmonds Community College to set up the forerunner of the Center of Excellence for Aerospace and Advanced Materials Manufacturing. The Center is a liaison and resource for 34 Community and Technical Colleges (CTC's) in Washington State. She is known as a tireless advocate and visionary for shaping Washington's future. Her work has a national impact on skills training through collaborations among government, education and industry. The Center of Excellence sponsored the ATEA 2015 National Conference Plenary session: "Mechatronics: Transforming Skill Sets for High Paying Career Pathways in Automotive, Aerospace and Advanced Manufacturing. Key Collaborations that have transformed Competency Based Education through NSF Funding."

The Executive Committee members are President Paul Young, Past President Rich Wagner, Past President James King, Treasurer Bob Wallace and Ex-officio, Sandra Krebsbach, Executive Director.

### **Board members in Washington**

On October 26, Gateway Technical College's President and CEO Bryan Albrecht presented the college's boot camp and Gateway Promise programs at a White House Community College Convening event in Washington D.C. showcasing the best practices from across America to strengthen community college access and success. The event was hosted by Dr. Jill Biden and White House administrative officials.

College presidents, policymakers, elected officials, foundations and businesses leaders were among the group who spoke on solutions to improve college-readiness strategies. The SC Johnson, headquarted in Racine Wisconsin, supporter of the Gateway boot camp program was featured as a model for demonstrating the important role tuition-supported programs mean to student success. "Successful partnerships are built on trust and clearly defines roles and responsibilities within the economic ecosystem of your community," said Albrecht. "SC Johnson understands how education can influence that ecosystem."



L-R: U.S. Vice President Joseph Biden, Dr. Bryan Albrecht, Dr. Jill Biden



L-R: Portia Woo, Assistant Secretary of Labor; Bryan Albrecht, Gateway Technical College President and CEO; Jim Ladwig, Director Global Community Affairs, SC Johnson; Brian Jersky, California State University-Long Beach, Provost & Senior Vice President

FALL/WINTER 2016 | ATEA JOURNAL

### **Board members in Washington**



L-R: Tom Dusterberg, Former Executive Director, Manufacturing and Society in the 21st Century Program, the Aspen Institute; Co-founder, Initiative on U.S. Manufacturing and Public Policy; Ron Ault, Former President, Metal Trades Department, AFL-CIO, Robert I. Lerman, Professor Emeritus, Department of Economics, American University; Institute Fellow, Center on Labor, Human Services, and Population at the Urban Institute; Sue Smith Vice President for Technology Division, Ivy Tech Community College, Mike Petters, President and CEO, Huntington Ingalls Industries.

September 14, 2016, Indiana School of Public Policy Manufacturing Summit in Washington DC at the National Press Club, "What the Next President Should Do About Manufacturing: An Agenda for the first 100 Days" ATEA Board member, Sue Smith, Vice President for Applied Sciences, Ivy Tech Community Colleges, was a panelist on the Education and Manufacturing Panel: "Is there a Skills Gap and How do we fill it?" Panelists L-R: Ron Ault, Former Metal Trades Department AFL-CIO; Robert Lerman, Professor Emertius, American University and Institute fellow, Center on Labor, Human Services and Population at the Urban Institute; Sue: Mike Petters, President and CEO of Huntington Ingalls Industries in Virginia and Mississippi.

Sue spoke with strength and clarity on the importance of apprenticeships and that they can be union and nonunion. She spoke of Ivy Tech's relationships with industry which is known from the ATEA national conference in Indianapolis in 2015 that she is recognized for building those relationships. **Indiana University SPEA**, **Manufacturing Summit**, "What the Next President Should Do About U. S. Manufacturing: An Agenda for the First 100 Days." National Press Club, Washington DC September 14, 2016. Sue Smith, Vice President for the Technology Division, Ivy Tech Community College.

Continued on page 15

### **American Technical Education Board of Trustee Fall Meeting**

The Board of Trustees met at the Mid-Plains North Platte, Nebraska, campus on October 5 and October 6 in conjunction with the Region 5 conference. Board members participated both in person and by conference call. The primary agenda items were industry sponsorship of the ATEA national awards and the leadership succession plan. The spring Board of Trustee meeting will be March 14 and the morning of March 15, prior the ATEA National Conference in Nashville Tennessee.



Table to the left: L-R Victor Branch, Mississippi State Univ CAVS Extension, Canton Mississippi Extension; Dr. James Sherrard, Three Rivers Community College, Norwich CT, Chair Nuclear Programs

Table to the right: Dana Wolff, Southeast Tech, Sioux Falls, President Regional Councils; Brooks Jacobsen, Lake Area Tech Institute, Watertown SD, Robotics Instructor; Dr. Keith McClanahan, Executive VP and Provost, Ozarka College, Melbourne, AR; Dr. Harry Bowman, President Emertius, Council on Occupational Education, Clermont FL.

Head table: Dr. Sandra Krebsbach, Executive Director and Dr. Paul Young, ATEA President and President of Northern Wyoming Community College District.



L-R: Dr. Harry Bowman, President Emertius, Council on Occupational Education, Clermont FL; Dr. Keith McClanahan, Executive VP and Provost, Ozarka College, Melbourne, AR; Brooks Jacobsen, Lake Area Tech Institute, Watertown SD, Robotics Instructor; Dana Wolff, Southeast Tech, Sioux Falls, President Regional Councils.



Dr. Paul Young, ATEA President and President of Northern Wyoming Community College District.



Dr. Rich Wagner, Past President of ATEA and President of Dunwoody College of Technology.

8

### **Region 5 Presidents' Roundtable**

Dr. Paul Young, President of the American Technical Education Association, and President Ryan Purdy, President of Mid-Plains Community College jointly convened a roundtable discussion on topics of concern and interest in Region 5. The topics generated were:

- Downward trend of state funding of technical education and community colleges and legislative understanding of the role and importance of technical education
- faculty credentials, finding faculty with specific degrees
- federal funding
- collaboration
- competency based learning
- delivery across large areas with a sparse population

ATEA will continue the dialog on these topics at future Presidents' Roundtables.



Center: Region 5 Co-Chair Cathy Mc Nutt, North Platte, Mid-Plains

L-R: Dr. Sandra Krebsbach, ATEA Executive Director; Cliff Smith, Dean Technical Education Center, Kansas City Community College, Kansas City, KS; Victor Branch, Education Manager, Mississippi State, Canton MS; Jason Stratman, Dean of Instruction and Workforce Development, Western Nebraska Community College, Scottsbluff NE; Dr. James Sherrard, Three Rivers Community College, Norwich CT; Dean Rosati, President of Nebraska Agriculture Technology Institute. Curtis NE

Back to the photographer: Mark Englert, Ph.D.; Vice President/CEO – Gillette College; Scott Mickelson, President, Dawson Community College, Glendive MT

Not in the photo—Dr. Keith McClanahan, Executive VP and Provost, Ozarka College, Melbourne AR; Dr. Paul Young, President ATEA and President Northern Wyoming Community College District, convener; President Ryan Purdy, Mid-Plains Community College, convener

### Next Region 5 conference hosted by Minnesota State Community and Technical College, October 12 and 13 at the Moorhead, Minnesota campus.

There will be a Presidents' Roundtable and the conference will focus on technical education's role in the economic development of western Minnesota and the Fargo- Moorhead area.

### Region 5 "Training the Superheroes of the Present and Future

hosted by Mid Plains Community College, North Platte, Nebraska Oct. 6-7, 2016"



Ryan Purdy Mid Plains Community College President

Mid-Plains Community College welcomed the American Technical Education Association's Board of Trustees and along with attendees to their 2016 Region 5 conference held at its North Platte Community College campuses. Cathy Nutt, an instructor in financial services and Kent Beel, Division Chair of Applied Technologies at the college, led a dynamic team of MPCC faculty and staff that produced the

conference entitled, "Training the Superheroes of the Present and Future." Cathy and Kent stated that the college's career, technical, health and business faculty and staff typically attend Region 5 conferences as well as national conferences. In their comments, they added, "ATEA is an important connector of technical educators across disciplines, across the region, and across the country. We appreciated the opportunity to host in North Platte and to share our college, our community and our best practices."

In addition to a variety of presentations, the conference covered a tour of the Union Pacific Railyards where trains arrive, are broken up and then rebuilt to form new trains that are then bound for the east, west and south. There was a tour of Walmart Distribution Center. It is in North Platte because we are the crossroads of Interstate 80 east to west and US Highway 83 Canada to Mexico. There were tours of Great Plains Health Hospital, Feather River Vineyards, Grain Bin Antique Town, Gerald Gentleman Station's Coal-fired power plant, North Platte Hydro plant and tours of North Platte Community College's North and South Campuses.

Additionally, North Platte is a regional center for digital communications as the one of Network Nebraska's backbone sites making it highly valuable in the distribution of regional internet and digital access.

In closing, the entire North Platte Conference Committee wishes to thank the ATEA's National Board of Trustees and Region 5 attendees for coming to their "Training the Superheroes of the Present and Future" conference.



Keynote Speaker, Corinne Hoisington

Keynote: "Transform your Imagination into Reality" Corinne Hoisington, Central Virginia Community College.

National speaker, Corinne Hoisington, moved around the auditorium using the Office Remote app on her smartphone to change PowerPoint slides and click on videos demonstrating how to use technology to engage students and to energize instruction. She called up Tara Naughtin, Assistant in Academic Affairs, to try Oculus Rift a virtual reality headset that went on sale in October. A video showed how hologram technology projects in 3D on walls, coffee tables and the projection will move with you from room to room. Hololens will be on sale for \$299 in April.

Two Important "take ways" from Corinne for the ATEA Great Plains Region:

- Augmented reality can completely change the way geographically dispersed student connect to online classes. Imagine a hologram of an instructor assisting a student with their online assignment.
- Imagine repairing a tractor with augmented reality demonstration

"Super Heroes Today and in the Future" delivered on identifying trends that effect technical education.



### Region 5 2015 Conference

Host: Mid Plains Community College, North Platte, Nebraska



















### Invitation to 54th ATEA National Conference on Technology

### hosts

### 2017 ATEA 54th National Conference Letter of Invitation



The Tennessee Colleges of Applied Technology are excited to once again welcome everyone to the great state of Tennessee! We are honored to host the 2017 American Technical

Education Association (ATEA) 54th National Conference.

The conference theme, "Live from Nashville... Workforce Innovation & Partnerships," is reflective of the mission that we fill as technical educators to advance our efforts through relationships within the workforce. ATEA and its members place great emphasis on promoting innovative approaches to educational experiences that meet workforce demands while also building partnerships based on trust and commitment to students, communities, and business/industry.

This conference will provide professional development opportunities including the latest on new technologies, student success practices, and strategies for the classroom, all of which can be applied to enhance your programs of instruction. Also included in the conference are numerous vendors who

exemplify strong partnerships our institutions have with businesses and industries across the nation.

The conference planning committee hopes the sessions will provide each attendee the opportunity to build on their current knowledge, as well as, the opportunity to gain new resources that will enable them to develop and strengthen their institutions.

The City of Nashville has grown from a foundation built on music and now tops the charts for Top 10 Best in Travel 2016 by Lonely Planet's. We trust that you will benefit from the training sessions, industry tours, and fellowship with your peers, not to mention experiencing Nashville's musical heritage that weaves such a fundamental pattern in its cultural, business, and social fabric.

Begin making your plans today to attend the 2017 54th National Conference of the American Technical Education Association in Nashville, TN, March 15-17, 2017!

Sincerely,

James King, Vice Chancellor, Tennessee College of Applied Technology System and Dr. Tachaka Hollins and Dr. Arrita Summers, Conference Planning Co-Chairs

### **ATEA Bio for co-chairs**







Dr. Tachaka Hollins

Dr. Arrita Summers is the director of the Tennessee College of Applied Technology Dickson and Clarksville campus where she promotes a workforce development mission. Throughout her career she has promoted higher education opportunities to the residents of Tennessee with the aim of increasing the number of its citizens pursuing career and technical education

and/or a college education. She has served numerous roles throughout her career with the Tennessee Board of Regents, including faculty member and Faculty Regent.

Dr. Tachaka Hollins is the coordinator of the Tennessee Colleges of Applied Technology online programs at the Tennessee Board of Regents (TBR); where she has been employed since 2005. She earned her Bachelor of Business Administration in Computer Information Systems and Master of Business Education from Middle Tennessee State University. She completed her dissertation study on "Student Participation and Grade Performance in the Tennessee College of Applied Technology Online Collaborative" and earned her Educational Doctorate degree (Ed.D.) in the Educational Leadership and Policy Analysis at East Tennessee State University.

## schedule

### 2017 ATEA 54th NATIONAL CONFERENCE SCHEDULE

Sheraton Music City Hotel, Nashville, Tennessee | March 15-17

### Tuesday, March 14, 2017

4:00 - 7:00 pm Conference registration

4:00 – 6:00 pm ATEA Board meeting with Steering Committee

### Wednesday, March 15, 2017

8:00 am – 4:00 pm Conference registration

12:00 – 4:00 pm Trade Show

12:00 – 1:00 pm Lunch in the Trade Show Area

1:00 - 4:00 pm Tours

5:00 – 8:00 pm ATEA President/TCAT Reception at TCAT/Nissan Training Center, Smyrna, TN

and Silver Star Award Ceremony

### Thursday, March 1, 2017

8:00 am – 12:00 pm Conference registration

8:00 am - 4:00 pm Trade Show

8:00 – 9:30 am Opening General Session "Who You Want to Meet" introductions and Chancellor's

Panel: Partnerships and Alliances, plated breakfast

9:45 – 10:30 am Concurrent Sessions #2

10:30 – 10:45 am Break

10:45 – 11:30 am Concurrent Sessions #3

12:00 – 1:30 pm ATEA Awards Luncheon-Motivational/Entertaining Speaker with sit down meal

during ATEA award luncheon

1:45 – 2:30 pm Concurrent Sessions #4

2:30 – 2:45 pm Light refreshments in trade show area

2:45 – 3:30 pm Concurrent Sessions #5

4:00 – 10:00 pm Explore Nashville Experiences - Downtown, Opry Mills, General Jackson,

and more!

### Friday, March 17, 2017

8:00 – 8:45 am ATEA Regional Meetings

9:00 – 10:15 am Keynote Speaker

10:30 – 11:00 am ATEA Annual Meeting





### ATEA 54th National Conference on Technical Education TRADE SHOW

Conference Hosted by the Tennessee Colleges of Applied Technology Sheraton Music City Hotel March 15-17, 2017

### APPLICATION AND CONTRACT FOR EXHIBIT SPACE

Company Name		Telephone		
Address		Contact Person		
City, State, Zip		Title		
E-Mail		Fax		
booths are \$300 each for m		embers and \$850 for non-members. Additional 10X10 t. This includes piping, draping, table, chairs and an assigned decorator.		
Number of booths requ	ested:			
	1 booth @ \$500 + additional bo booth@ \$850 and \$400 additional bo	ooths @ \$300 each = \$ boths=\$		
	EA will assign booth numbers in the ord priority. If you have any special requests	er the contracts are received. Exhibit contracts with s, please contact our office.		
Description of product/s	ervice to be displayed:			
BOOTH SIGNAGE: (for 7"X4	14" sign)			
EXHIBITOR NAMES for ID	BADGES:			
made payable to ATEA. Not space is not available, the p	twithstanding anything else in this agree payment will be promptly refunded by AT	payment or credit card information. Checks should be ment, if the exhibiting company is not accepted or EA. Applications must be received no later than cellation or withdraw by the exhibiting company after		
Signature		Date		
Name (print)		Title		
Website address				
<b>Check</b> enclosed	Please charge our <b>Credit C</b>	ard Visa MasterCard AmExDiscover		
(Payable to <b>ATEA</b> )	Card number:	Expiration date:		
MAIL TO: ATEA 818 Dunwoody Blvd	TRADE SHOW CONTACT INFO: Sandra Krebsbach	ATEA use only:  Rcv'd date: Total Paid:		
Minneapolis MN 55304 www.ateaonline.org	PH: 612-381-3315	Booths assigned:		

### Continued from page 7

### Sue Smith

I have been working with and/or for manufacturing companies for 30 plus years. I work with them every day. There concerns are always around remaining competitive and profitable. There are three common themes; 1) improve production process, 2) strengthen customer relationships and as Cummins says, improving relationships with the customers of our customers; and 3) finding people with the right skills—recruiting and retaining talent. Industry controls numbers 1 and 2, but talent is much more difficult to affect and manage.

Sue Smith, Manufacturing Summit, "What the Next President Should Do About U. S. Manufacturing: An Agenda for the First 100 Days."

### Strategies

There are a number of strategies some we have modeled after German and Swiss models in apprenticeship and internships. Most community colleges including Ivy Tech we do both and many other training programs, but it is not enough. We have to grow our registered apprenticeship programs – registered with the DOL because without registration, the programs fall apart and fade away. Many manufacturing companies shy away from registering their programs because they think there is a union connotation. There is not. In fact the vast majority of programs, particularly industrial programs are non-union.

The next president must incentivize these programs to address the skills gap.

### Marketing

As we all know the perception of manufacturing companies and careers must change to attract the talent needed. We have to start with younger audiences but continue to attract incumbent and returning workers. (Example of GE commercial where daughter talks about her mother building train engines).

There are many things we can do to concentrate on attracting women – Million Women Mentors conference in DC. We can open factories for tours and host events.

Millennials - Companies want more leadership and performance management skills in their workforce. Turns out millennials want that also. Let them know.

We talk to teachers and guidance counselors all the time. How is that working out for us?

We need a metric for HS counselors similar to the one for students who are awarded scholarships. Senior night should give the same attention to students who get paid internships and apprenticeships or even jobs as is given to those who get scholarships – many of which will not be used!

### Good Models are incentivized

There are a number of good models in the Carolinas, Kentucky, and Tennessee. These are incentivized and they must be to be adopted widely. That can be done in a number of ways tax credits, for example.

One of the best is Tennessee Promise which is a college for all model funding the first two years of community college. TN reconnect.

Students pay taxes, spend money, and vote within 60 miles of where they completed their degree.

### Companies – need to take charge

### Own the skills gap - do not wait for someone to fix it.

If we can get training and education that is vocationally focused incentivized that will certainly contribute to productivity but there are ways companies can afford to affect the degree and credential attainment.

Achieve your Degree is an initiative that is much like fee remission policies in the 90s that sort of dropped off in 2008 and 2009. Companies supported and valued education by paying for their employees to get degrees and credentials.

Companies have to value education and demonstrate that value – give hiring preferences and rewards. Should also standardize education through certifications like the Manufacturing Institute and NAM supported certifications.

Ivy Tech and other community colleges have developed career paths using these certifications and there are multiple entry and exit points corresponding with various occupations and careers. Learning is lifelong recognize and reward it.

It has been mentioned today that there are 2 million jobs going unfilled today. That is a tragedy for all of us and for the next administration. We can do a few things in the first 100 days:

### Incentivize apprenticeships and internships.

Market our manufacturing jobs to attract and retain talent through campaigns and incentivizing guidance counsellors and high schools and working to change the reputation of manufacturing.

Model other programs like Tennessee Promise and college for all

Companies take ownership of issue – standardize, recognize and reward credentials.

### Thank you!

### Manufacturing Skilled Labor and the Salary to Education Expense Ratio

by: E.J. Daigle III, Dean of Manufacturing at Dunwoody College of Technology in Minneapolis, Minnesota

### **Author Note**

E.J. Daigle is the Dean of Manufacturing at Dunwoody College of Technology in Minneapolis, Minnesota. Dunwoody's Manufacturing Department has over 400 students in programs that include Automation/Robotics, Electronics, Engineering/Design, Machine Tool and Welding.

### **Background Information**

I enjoy working with high school kids each fall in preparation for the high school FIRST Robotics competition each spring. During an event in 2015, I had the pleasure to work with a young lady who was extremely interested in the Solidworks CAD software we were demonstrating. After the session, she pulled me aside to ask questions about 3D printing, CAD, CAM, and CNC manufacturing. Her knowledge of CAD modeling and 3D printing was impressive and when she saw our CNC machine shop, she fell in love with it. As I discussed, the \$10,000 scholarship opportunities available to women in technical careers, I could see she was completely engaged. At this point, her mom showed up to pick her up and mentioned that she was not interested and was going to be a Badger, (mascot for the University of Wisconsin), just like mom and dad. I not so jokingly asked, "What does being a Badger pay?" Have we gotten to the point where the institutional name on the degree is more important than the passion of the individual or the job opportunities available in the field of study?

### A Shortage of Skilled Labor

The United States does a poor job of enlisting our young people into manufacturing education, jobs, and careers. The Manufacturing Institute (2015) found that over the next ten years over 2 million manufacturing jobs will go unfilled due to a shortage of skilled labor (Deloitte, 2015). This is happening in an industry that adds over two-trillion dollars to the U.S. economy every year (NAM, 2015). For over 100 years, the United States has led the world in manufacturing and only recently (2010) was surpassed in total manufacturing output by China. Over the past 20 years, many American companies have offshored to China, India and Vietnam to save money on labor (McCormack, 2013). More recently, however, these same companies have begun to realize their products are made to higher quality standards and at less cost by keeping manufacturing in the United States. Modern manufacturing is a state-of-the-art process that utilizes the latest technologies in CAD, CAM, CAE, and CNC manufacturing where the human rarely (if ever) touches the product at any stage. Enterprise Minnesota recently found that 66% of manufacturing companies consider it difficult to find skilled

labor (Enterprise Minnesota, 2016). Addressing the skills gap is mission critical!

### Modern Manufacturing offers excellent career opportunities.

Modern manufacturing careers offer an outstanding return on investment when compared to traditional university studies. Examples include post-secondary certificates and associate's degrees in design/drafting, engineering technology, machining, and welding. These degrees and certificates can be done at local community and technical colleges for a fraction of the cost of a university bachelor's degree. The National Center for Education Statistics (NCES, 2013) found the annual cost of education including room and board at a public 2-year institution was \$8,928 while an education at a public 4-year institution was \$17,474. Table 1 shows a list of manufacturing-based careers and median salaries that can be obtained with either a certificate or associates degree (BLS, 2016).

Table 1: Bureau of Labor and Statistics - Occupational Outlook Salary Data

Manufacturing Occupation	Growth (2014-24)	Median Salary
Welder Fabricator	4%	\$37,420 / yr.
Mechanical Drafter	2%	\$55,260 / yr.
Mechanical Engineering Technician	2%	\$53,530 / yr.
Machinist / Tool & Die	6%	\$41,510 / yr

Statistically, all post-secondary education is valuable as salaries increase and unemployment decreases with education (BLS, 2015). That being said, many of the manufacturing tracks offer opportunities for education, employment, and continued advancement that greatly exceed those of the typical 4-year degree. Table 2 represents the S/E ratio (median salary to education expense) for several in-demand manufacturing trades compared to the average for all 4-year degrees.

From table 2, we can see that the S/E ratio for a mechanical drafter is high at 3.09. This means for every dollar invested on a mechanical drafting education, the student can expect to earn another 3.09 dollars back. When looking at the S/E ratio for the average of all bachelor's degrees, we see a much lower S/E ratio at 0.85. This means for every dollar spent on a 4-year degree, the student can expect to earn 85 cents back. It's also worth noting that the 6-year graduation rate for a student starting a 4-year degree is 59% (NCES, 2013). So the question is, why do students continue to risk \$69,896 on a 4-year degree they are equally as likely to not complete for a job that does not return the investment?

6 FALL/WINTER 2016 | ATEA JOURNAL

Table 2: Median Salary to Education Expense (S/E) Ratio

Occupation (Education Level)	Educational Level	Median Salary	Expense	S/E Ratio
Welder Fabricator	Certificate 1-year	\$37,420 / yr.	\$8,928	4.19
Mechanical Drafter	AAS 2-year	\$55,260 / yr.	\$17,856	3.09
Engineering Technician	AAS 2-year	\$53,530 / yr.	\$17,856	2.99
Machinist / Tool & Die	AAS 2-year	\$41,510 / yr	\$17,856	2.23
Average - All 4-Year Degrees	BA/BS 4-year	\$59,124 / yr.	\$69,896	0.85

### Tracking Students into 4-year degrees.

A survey of high school students found that over 50% of students in Waterloo High School's Metals 1 class said that a class in metals helped them to make a choice for postsecondary education (Chopin, 2013). At the same time, only 4% of the students surveyed received guidance counselor encouragement to enroll in such a course. The greatest challenge we face is that of negative perceptions deterring young people from a career in manufacturing (Industry News, 2013). Many manufacturers see high school students being pushed (by parents and counselors) towards college rather than vocational, technical, and community colleges without regard to their individual needs and aptitudes (Institute for Career Research, 2005). "In a poll conducted by the Foundation of Fabricators & Manufacturers Association, 52 percent of teenagers said they have no interest in a manufacturing career" (Deloitte, 2015, p. 15). The greatest misconception among young people was that manufacturing is low-skill, dirty, and dangerous. Generation Y survey respondents ranked manufacturing last out of seven potential career clusters (Deloitte, 2015). This is at a time when new technologies in CAD, CAM, CAE, and CNC have resulted in new manufacturing facilities that are high tech and cleaner than your local doctor's office. There are over 200 manufacturing companies within a 20 mile radius of Dunwoody College that make parts for the medical device industry. Many companies like Medtronic, Boston Scientific, St. Jude, and 3M are household names, but it's the mid-size and smaller companies like Custom Mold, Donatelle, Great Batch, Lake Region, Neometrics, Dynamic Group, RMS, Cretex, Die Technology, Mendell, Permac, Minnetronix, and Multisource that people should take note of. These companies design and build plastic, metal, and electronic devices in shops that rival any semiconductor facility clean room. These are the very companies that are hurting for people and willing to pay top dollar for the right designer, machinist, or engineer.

### **Potential Solutions**

Although what has been described thus far appears to paint a picture of doom and gloom, there is perhaps a glimmer of hope for our kids as they approach an ultra-competitive global workforce. Academic extracurricular activities are gaining momentum and the results are very encouraging. High school academic clubs have taken on the competitive nature of amateur athletics by replacing brawn with brains. High school competitions like SkillsUSA, Super-Mileage, and

FIRST Robotics have been shown to increase high school graduation rates, post-secondary admissions, and college graduation rates (Sahin, 2013). In 2013, high school robotic teams outnumbered high school hockey teams in the state of Minnesota (Estrada, 2013).

Manufacturing Day occurs the first Friday in October each year and allows companies and technical colleges to open their doors to the future generation of manufacturing professionals. In 2015, over 2600 events were held in all 50 states with more than 225,000 students and 55,000 parents attending (Manufacturing Institute, 2015). These events are part of the solution to the problem in the manufacturing industry, but we need to ask ourselves what else can be done. In the end, it's up to industry professionals to sell their trade to the next generation and I feel we are well-prepared to complete the task.

### **Closing Remarks**

The current system of education in the United States is one that promotes college for all where it's more important to get any 4-year degree than to get an education that results in employment. According to The Wall Street Journal, the class of 2014 marked a turning point where the average student loan debt was \$33,000 with 4-year university graduation rate of 59% (WSJ, 2014). This misalignment between education and employment skills has resulted in under-employed college graduates with large student loan debts. At the same time, several industries find themselves starved for workers. Middleskill jobs will represent 48% of the labor market over the next 20 years (Kochan, 2013). These middle-skill jobs reside in health care, computer technology, and manufacturing. The biggest challenge we currently face is that nearly two-thirds of high school graduates will enroll in university degrees that do not prepare them for these outstanding opportunities. By looking at the S/E ratios presented in this paper, students and parents can compare the price of education with current employment opportunities. Although the model may be different, a two-year degree represents the greatest pathway to prosperity with the smallest risk. Students looking to advance to supervisory positions can at many times continue their studies (beyond a two-year degree) using company tuition

reimbursement. The United States can retake its lead in manufacturing if and only if we can show this next generation of workers the value of American ingenuity. To quote Steve Jobs, "Our goal is to make the best devices in the world, not to be the biggest" (Jobs, 2010). I would expand upon that by saying students should strive to get the best education and not the most expensive.

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Programs include; Automated Systems & Robotics, Electronics Engineering Technology, Engineering Drafting & Design, Industrial Engineering, Machine Tool Technology and Welding & Metal Fabrication. Prior to Dunwoody, E.J. served for 11 years as a Missile Technician aboard nuclear submarines in the US Navy. His areas of expertise include industrial electronics, manufacturing processes and polymer engineering. E.J. has a B.S. in Applied Mathematics and a M.S. in Manufacturing Engineering.

18 FALL/WINTER 2016 | ATEA JOURNAL

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