ATEA

American Technical Education Association

Journal

Dr. Harry Bowman

**2016 Jean Koch
Outstanding Technical Education
Acheivement Award Winner**

From the Executive Director and Managing Editor

The trend that ATEA is seeing at the conference and in communication across the country is to meet industry standards and hiring needs, technical education is increasingly delivered through multisector state collaborations or national collaborations and partnerships. There are two examples reported in this edition. The Alabama experience with Work Force Councils reported in the "Chancellor's Panel" and the automotive and aerospace industry collaborations around mechatronics in advanced manufacturing reported in Plenary 2. The example is Automotive Manufacturing Technical Education (AMTEC) and ATE NSF funded project.

A second trend is in technical education leadership reported by the Ivy Tech Community College Division's experience through an ATE National Science Foundation Grant. Ivy Tech's Plenary is a comprehensive analysis of "what it takes" to lead a statewide division yet maintain regional service. Today's technical leaders not only manage their college technical division but are required to market the division, recruit and build relationships with business and industry to identify what they need and to build relationships with K-12 to recruit students to programs and recruit and retain faculty. Learn how Ivy Tech is doing it in Plenary 1.

ATEA thanks Governor Robert Bentley for his keynote address on Alabama workforce development that has transformed the state. Thank you to the Alabama Community College System and especially Chancellor Mark Heinrich and Dr. Tim Alford for hosting the 53rd National conference. The conference received strong ratings for delivering on the role and importance of technical education, sharing best practice, building professional relationships and identifying trends in technical education. Be sure to check the ATEA website www.ateaonline.org and the ATEA Channel for the full playlists of videos of general sessions

The Journal proudly reports the winners of the ATEA national awards. This year there was a "Jean Koch Outstanding Technical Education Achievement Award." It was given to Dr. Harry Bowman, retired President of the Council on Occupational Education. There was also an "Innovative Program" award which recognizes new ways to engage, support and award completion certifications that are recognized by employers. It went to Gateway Technical College, "Boot Camp."

We have a new associate editor of the reviewed section, Sarah Huber, MLIS from Dunwoody College of Technology. Thank you to Jane Hildenbrand who served as the associate editor but has recently retired from Ivy Tech Community College Kokomo.

Sandra Krebsbach

president's letter

When I first moved to Wyoming in 2005 to take over as CEO of our campus in Gillette I found myself in desperate need of resources for developing and growing a very small technical education component that existed at the college. Together with our main campus in Sheridan I think we had a total of three tech instructors and there were probably 25 students in total.

At that time Wyoming was in the thick of the energy boom. Natural gas, oil and coal production were all accelerating at breakneck speed. Like many places in the nation, technical education in Wyoming had fallen by the wayside over the previous quarter century as many secondary schools had gotten out of the business and two year colleges became ever-more focused on their transfer mission leaving small pockets of very competent but often times neglected and isolated faculty and programs.

This is the story of how I came to ATEA. Not having a tech background myself (I'm a former philosophy faculty) I realized I needed to learn about the state-of-the-art in post-secondary technical education and I also needed to find a network of middle and upper level program leaders who could help me think about how to ramp up quality programs quickly and where to find the financial resources to pay for them. That was a particularly lonely moment. Here I was in what Time magazine and others were calling one of America's top industrial boom towns, with angry employers demanding skilled workers and absolutely no idea how I could help my institution to fill that gap.

So I did what Aristotle would have done had he lived in our age and went online and, using the popular search engine of the day (AltaVista, not Google), I searched for "post-secondary technical education resources." I found the ATEA website and learned that there was a regional meeting that fall in a neighboring state. I had the same apprehensive feeling walking into that meeting as I did on the first day of school in the first grade. But soon I was talking to other tech program leaders and faculty from schools all across our region. Everybody was at a different place in terms of the lifecycles of their programs but I began to learn and grow professionally as a result of the resources I found at ATEA. Ten years later we have nearly 20 faculty teaching hundreds of students in our programs – still small by national standards and compared to many of the other institutions that participate in our organization – but exponential growth for us.

Things are very different in Wyoming these days. The energy boom has gone bust with producers laying off thousands of workers. The impact on the economy and the many affected families is devastating, so it is hard to think of any good that can come from this situation. But one possible silver lining is that the strong, up-to-date and productive tech programs we've built here with the help of the ATEA are serving as major attractors as local economic development professionals scramble to try and recruit manufacturers to relocate here. Ten years ago during the boom we couldn't recruit new employers because the workforce was completely tapped out in the energy industry. But today we're producing dozens of highly qualified tech graduates with advanced skills. That's very attractive to small and medium sized manufacturers who are having difficulty finding talent in other parts of the country.

Many of you have been involved with ATEA as long or longer than I have and so I'm sure you have your own story of how our organization has helped you, your school and your regional economy. If you're new to our organization, I hope you will take advantage of our regional and national meetings to build both your network and your knowledge base. We need all of you to bring both your problems AND your solutions to an upcoming regional meeting or our national meeting in Nashville next March. I hope to see you there and to continue learning from you!

Executive Committee

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

ATEA Vice President
Bryan D. Albrecht, Ed.D.
President and Chief Executive Officer
for Gateway Technical College
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ATEA Past President
Dr. Rich Wagner
President, Dunwoody College of
Technology, Minneapolis, MN

ATEA Past Past President
James King
Vice Chancellor for the Tennessee
Colleges of Applied Technology for the
Tennessee Board of Regents

ATEA Director of Finance
Bob Wallace
Tennessee Technology Center
Tennessee Board of Regents
Director of Finance

Ex-Officio

Ex-Officio
Dr. Sandra Krebsbach
ATEA Executive Director

Newly Appointed to the Board of Trustees for a 3 year term

ATEA Board of Trustees
Victor Branch
Manager Digital Training Tools,
Mississippi State University

ATEA Board of Trustees
Jon Connolly, Ph.D.
President, Sussex County Community
College, Newton, New Jersey

ATEA Board of Trustees
Mark Heinrich, Ph.D.
Chancellor, Alabama Community
College System. Montgomery, Alabama

Victor Branch, Manager Digital Training Tools, Mississippi State University, Canton Mississippi Center for Advanced Vehicular Systems Extension. Victor's work focuses on partnerships and the interface with K-12 and postsecondary education on behalf of the Center, Nissan and the automotive industry in Mississippi. Victor has been an ATEA breakout presenters at national conferences. Victor is a graduate of the University of Arkansas, Pine Bluff, computer science and business program.

Jon Connolly, Ph.D. is the president of Sussex County Community College, Newton, New Jersey. Prior to this appointment to the presidency in 2016, he served in multiple administrative roles in institutions in Maine and Wyoming. He is a graduate of Colby College, Waterville, Maine, with majors in Biology and Geology-Biology; holds a masters of Forest Science from Yale University School of Forestry and Environmental Studies and a Ph.D. in Biological Science from the University of Maine. He has published many peer-reviewed research articles, and has presented at numerous conferences to international audiences and at many higher education leadership seminars.

Mark Heinrich, Ph.D. is the Chancellor of the Alabama Community College System, Montgomery, Alabama. He has served in that role since 2012. Prior to serving as Chancellor, that Dr. Heinrich was the President of Shelby State College, Tuscaloosa, Alabama from 2007 to 2012. Dr. Heinrich's higher education career spans more than 30 years, during which he's held leadership roles in academic, student service and technical/vocational areas. He is holds a B.S and M.S. in counseling from the Tennessee Technical University and a Ph.D. in Counseling from the University of Alabama. During his graduate work at Alabama, he Heinrich served on Coach Paul Bear Bryant's staff as an academic counselor and tennis coach. Mark was the co-chair of the 2016 ATEA national conference held at Orange Beach, Alabama. He was appointed to the Board in December of 2016 to complete the two years of a retiring Board member. He was sworn in at the Annual meeting on March 11, 2016.

Reappointed Board of Trustees

At the ATEA Board of Trustee meeting, the Board voted to change the ATEA by-laws from 12 elected and 12 appointed to an all appointed board. The 24 member board will be designated as appointed effective the 2016. That applied to both new and renewing Trustees. Prior to that 12 were elected and 12 appointed.

BROOKS JACOBSEN

Brooks is a supervisor and instructor in the Lake Area Technical Institute, Watertown, South Dakota's robotics and electronics technology systems program. He joined the ATEA Board in 2013 and was reappointed to his 2nd term. Brooks is the Chair of the ATEA National Awards Nomination Committee. Lake Area Tech Institute, through Brooks leadership, is a strong supporter of ATEA Region 5 conferences, bringing 100 participants to the 2015 conference in Sioux Falls, South Dakota. Brooks serves the National Guard as the Missile Launch Repair Team. Brooks is a graduate of the AAS Robotics Program at Lake Area Tech and a BS in Engineering Management from Grantham University Kansas City, Missouri. He is certified in FANUC and Kawasaki Robotics USA inc.

SHAWN MACKEY, ED.D.

Shawn Mackey is the Deputy Executive Director for Programs and Accountability for the Mississippi Community College Board, Jackson Mississippi. Dr. Mackey also served as Associate Executive Director for Workforce and Career and Technical Education for the MCCB. Shawn joined the ATEA Board in 2013 and was reappointed to his second term. Prior to joining the Mississippi Community College Board, he worked in the non-profit sector for 10 years and in higher education for 10 years as an instructor and Assistant Dean of Career Technical Education at Coahoma Community College, Clarksdale, Mississippi.

Dr. Shawn Mackey is a three-time graduate of Delta State University with a Bachelor of Science Degree in Criminal Justice (1997), a Bachelor of Arts in Psychology (1997), and a Master's Degree in Social Science Education (2000). Dr. Mackey received his Doctorate of Education Degree from the University of Memphis in the area of Higher Education Administration (2008). He brings a strong perspective to the Board from his direct leadership and experience with workforce development.

CHELLE TRAVIS

Chelle Travis was reappointed to a 3rd term on the ATEA Board of Trustees. Chelle is the Assistant Vice Chancellor for Student Services for the Tennessee Colleges of Applied Technology, Tennessee Board of Regents. Chelle leads the system's SkillsUSA programs and competitions; works with the Tennessee Promise and Tennessee Reconnect Programs as well as the NC3 Certifications system wide.

Chelle was the 2013 ATEA national conference Co-Chair along with Mark Lentz, Director the Nashville TCAT. She serves on the ATEA National Awards Committee and is dedicated ATEA Board member offering the student perspective and experience from other national programs. Chelle is a graduate of Middle States Tennessee and is working on a doctorate at Tennessee State University Nashville.

student

Outstanding Technical Student Award 2016

Brandon Kinnie is a Nuclear Technology Engineering AAS Degree student at Three Rivers Community College in Norwich, Connecticut. He was nominated by Dr. James Sherrard Nuclear Programs Chair and Dr. Mary Ellen Jukoski, President of Three Rivers Community College. In his personal statement he noted that he was looking forward to attending a university, then an opening came in the Nuclear Engineering Program and he took it. He speaks to students in his high school, Griswold High School about this program and Three Rivers Community College.

In the nomination letter President Jukoski wrote of Brandon's outstanding academic performance, a 3.63 GPA in a very demanding program and of his engagement in college and community activities. He is a member of student chapters of the American Nuclear Society (ANS), the American Society for Non-destructive Testing (ASNT) and the Health Physics Society (HPS). He has been selected for both Phi Theta Kappa and Sigma Pi Sigma honor societies. He completed a twelve week summer internship at Millstone Station Nuclear Complex in the mechanical maintenance division. Dr. Sherrard wrote that he received the competitive Millstone/scholarship program. Brandon was one of 16 students receiving a full two year scholarships. Brandon stands out among his peers and therefore was nominated for the ATEA Outstanding Technical Student Award.

L-R Dr. Sandra Krebsbach, Ex. Director, Brandon Kinnie, Outstanding Technical Student 2016, Dr. James Sherrard, Chair Nuclear Programs Three Rivers Community College

Brandon works on his family dairy farm. His family belongs to The Society of Mayflower Descendants in the State of Connecticut. He took first place in Three Rivers Math Contest in 2015. He is weighing his options which are to continue on to a four year degree program or stay at Three Rivers Community College to obtain a second Associates Degree in Mechanical Engineering with the option to continue on to a four year degree. Brandon says "Ultimately, I would pursue the opportunity to work for Dominion Nuclear Connecticut Plant or Electric Boat in Groton, Connecticut as long as I am able to stay in a technical field."

Award Committee Members for 2016 Awards

Dr. Harry Bowman
President Emeriti
Council on Occupational
Education

Bethany Shockney
Director of Small Business
Development
Pulaski County, Tennessee.

Dr. Mike Mires
Dean of Professional, Technical
and Workforce Education,
Northern Idaho Community
College

Chelle Travis
Assistant Vice Chancellor of
Student Services
Tennessee Technology Centers,
Tennessee Board of Regents

Dr. Amy Erickson
Dean of Science, Math,
Agriculture and Culinary,
Northern Wyoming Community
College District

Brooks Jacobsen
Supervisor of Electronics
and Robotics Technologies,
Lake Area Technical Institute,
Watertown SD

teacher

Mr. Carlton Carter ATEA 2016 Outstanding Technical Teacher

Mr. Carter is a Master Instructor in Electronics and Industrial Maintenance at the Memphis, Tennessee College of Applied Technology (TCAT). He has been at TCAT Memphis since 1994 and before that served in the Marine Corps from 1976-1993. During his service he was Radar Department Chief, Crew Chief and Assistant Maintenance Coordinator, Instructor in RADAR systems, and Assistant Radar Chief and Crew Chief. He is a graduate of Southern Illinois University Carbondale's Industrial Technology Bachelor of Science program.

L-R James King Vice Chancellor, Tennessee Colleges of Applied Technology; Chelle Travis Associate Vice Chancellor for Student Services; Carlton Carter, Outstanding Technical Teacher, Mr. Roland Rayner, Director of the Tennessee Colleges of Applied Technology-Memphis

Diane Wilkerson, Assistant Director, of TCAT Memphis wrote in her nomination letter, "It is refreshing to witness a teacher who has not only the knowledge and skill to do the job but also the passion to share it. He is a leader on campus as an example of an "outstanding instructor" often a mentor to new instructors. He is willing to take on additional hours, students and class loads. Carlton teaches "decorum and respect" as he provides the "best platform for learning: a safe and engaging environment."

Mr. Carter's student nominator wrote he had been living at Job Corps and did not have a family in Memphis. Mr. Carter was patient and "a consistent mentor" who made sure the he had the confidence to compete in SkillsUSA where he won a Gold Medal at the state competition. "The award made me more determine to succeed for myself and for Mr. Carter. That kind of support I cannot get out of book or count on from anyone else at this time in my life."

Director of Workforce Innovations, Nathan Garret, wrote. Carlton's leadership in the classroom has positively affected students, companies, and overall economic value of the manufacturing sector in Shelby County.

Ellie Hehn, recognized at the ATEA Awards Luncheon

Ellie is the widow of Merlin Hehn, the 1982 ATEA Outstanding Technical Teacher of the Year. Merlin taught electronics at Jones Junior College in Ellisville, Mississippi. In January, Ellie contacted the ATEA office that Mr. Hehn had passed away two years ago and he was still receiving the ATEA Journal. Executive Director, Sandra Krebsbach invited Ellie and her daughter to be guest of ATEA at the Awards Luncheon to acknowledge Merlin and to recognize her.

L-R James King, ATEA Board of Trustees, Ellie Hehn, Sandra Krebsbach Ex. Dir.

teacher

Outstanding Technical Teacher Award Finalists

Randy Whyte, Machine Tool, Sheridan College, Northern Wyoming Community College District

Randy is a graduate of Lake Area Technical Institute a long term ATEA member, where he studied Advanced CNC, CAM, Metallurgy, Heat Treating, Tool and Die, Manual and CNC, Die Molds, Jig and Fixture Welding. He worked in Seattle, Washington before moving to Wyoming to work as a machinists for L & H Industrial and earning an AAS in Machine Tool Technology at Sheridan.

Dean of Career and Technical Education, Jed Jensen, wrote in his nomination letter that Randy had come to Sheridan College from industry and quickly made the transition to teaching. Randy carried the machine tool program from 2008 to 2013 which grew on two campuses to two instructors on each campus and six students to twenty four students. The campuses are 100 miles apart. Randy built a quality program that produced students for the workforce and were recognized at state SkillsUSA, and represented Wyoming at the national level winning seven years out of ten.

Randy's fellow instructor, Sarah Spann, wrote in her nomination letter that Randy had been a machinists at L & H Industrial, a global industry based in Gillette, Wyoming. He started as an adjunct while a machinist. His industry background has helped him build and sustain industry relationships through the program advisory committee and local employers.

He grew the program in enrollment and in quality through equipment to make it the strongest Machine Tool program in the State of Wyoming.

She commended Randy on student engagement in SkillsUSA and the D11 Dozer Project, a 1:20 scale D11 dozer was fabricated from scratch out from a variety of processes including manual and CNC machining, laser engraving and rapid prototyping. This was a 400 hour investment of time for Randy and the students. It served as a fundraiser for the Machine Tool Club Chapter at Sheridan College.

Student Kevin Barger wrote in his nomination letter of Randy's influence on getting an Associate's Degree in Machine Tool Technology. Randy's classes were well balanced between hands on in the labs and "bookwork". When new CNC equipment arrived Randy had the students aid in the installation to calibrate the computers. Kevin has participated in maintaining the equipment which gives him added experience and value as an employee.

Randy wrote in his nomination statement of his enthusiasm and ambitions for the program, notes its growth, the expansion of the Advisory Committee and the start of the Machine Tool Club at Sheridan College. His club members are active in the Student Senate and raise money for travel to regional industries and SkillsUSA competitions in Wyoming and nationally. Randy is an example to his students of his motto, "Your imagination is your only limitation."

Michael Sledzinski, HVACR instructor, Tennessee College of Applied Technology, Knoxville, Tennessee.

Mr. Sledzinski was nominated by Dwight Murphy, Director of TCAT Knoxville. In his nomination letter Mr. Murphy commended Mike on being a dedicated instructor that challenges his students to take charge of their education. He develops leaders from his students through Student Government Association Presidents and SkillsUSA chapter presidency and the SkillsUSA National Parliamentarian. He leads in his area of Heating, Ventilation, Air Conditioning and Refrigeration. His students have done community programs such as installing air conditioning in a local theater. The Theatre Knoxville Downtown Assistant Director, Kasey Vetter accepted the project to give students hands on experience. A team of 15 students finished the project in a day and half including: installing a condenser, inside air handler, air conditioning coil, duct work, refrigerant lines and thermostat, three hours before curtain call.

outstanding program

Outstanding Program Award Winner 2016
Automotive Technology, Ivy Tech Community College, Northeast, Fort Wayne, Indiana

The ATEA awards nomination committee chose the Automotive Technology program because of its comprehensive curriculum and state of the art facilities. Dr. Darrell Kesler, Dean of Technologies Programs at IVCC Fort Wayne wrote the program has continued to grow to have the largest student population in the technical division. It includes alternative energy technology and most recently added diesel heavy truck technology. "Innovative and Preeminent" are used to describe the program. The faculty develops new teaching strategies and incorporates international travel in their training, one to automotive technology training in Ireland. The faculty and students support the community through Boy Scout badges, teaching basic car maintenance to local youth through Pink Leaf. The Automotive Technology Advisory Program assists in curriculum development and one graduate is employed by Tesla Motors in Salt Lake City. The program is supported by local businesses with donations of supplies and one company donated a truck for the diesel program. The received a "stellar" review in the recent National Automotive Training Education Foundation (NATEF) re-certification at master level. The program is also accredited by the Association of Technology, Management and Applied Engineering (ATMAE)

Advisory Committee member, Daniel Hayworth, owner of Macy's NAPA, Fort Wayne, commended the Ivy Tech Northeast program as one of the best and largest in Indiana. The college sponsors student appreciation days and continuous careering planning. John Thomas, Service Manager, Kelley Cadillac, Fort Wayne, wrote that the graduates have the

Robert Huffman, Program Chair accepted the award for the Ivy Tech Community College, Northeast, Fort Wayne.

knowledge to build upon to become some of his top performing technicians to work on complex automobiles. He looks to Ivy Tech for quality employees.

Automotive Technology graduate writing support of the program for the award was Colin Zimmer. Colin chose Ivy Tech because he would be "in the real world of in-need jobs." The price was right and it was close to home. He chose the associates degree of Automotive Technology because it was his passion, the facility was above par, and the students ranged from absolute beginners to experienced mechanics. The faculty was caring and knowledgeable. He made connections through Bob Huffman, his instructor and program chair, with the local Cadillac dealer. He worked there for two years, then set off to Tesla Motors, a new startup electric car company "that planned to change the way the automotive industry operated." Colin credits being young and able to "let that run wild." He has been with Tesla in Salt Lake City for two years, He is responsible for large purchases, assists in training new hires as well as traveling all over the US (and the world) to assist in vehicle repairs and diagnosis. Colin has worked in 15 shops worldwide. He went from "wondering if I should go to college to a job paying him to fly all over the world, all in 5 years." Ivy Tech set him on the right path for success. "I never thought when sitting in the classrooms working towards my associate's degree that I would be part of something so huge, so quickly after graduating. It is a great feeling and I have the entire automotive department of Ivy Tech Northeast to thank.

Top to Bottom: Robert Huffman, Auto Technologies Program Chair interviewed by Fort Wayne NBC news
Dr. Darrel Kesler providing a tour of the facility

innovative program

Innovative Program Award Winner 2016
"Bootcamp," Gateway Technical College, Racine and Kenosha, Wisconsin

The ATEA national awards committee instituted a new category of award, the Innovative Program Award. It is for programs that have proven success in completion and in meeting employers' needs. The first winner of this award is "Bootcamp" at Gateway Technical College, Racine and Kenosha, Wisconsin. It is a "best chance" and for some "last chance" at training to semi-skilled employment.

The boot camp educational programs offered by Gateway Technical College started in 2005 with the introduction of programming to respond to the needs of the local economy and workforce skill gaps in manufacturing. Wisconsin is in the top five leading the nation for manufacturing. Gateway serves Southeast Wisconsin which has the highest concentration of manufacturing in the state.

Working with local workforce development agencies, the primary goal of the program is to offer fully-funded non-traditional programming for adult learners who require immediacy of entry level skills to obtain employment. To date 56 boot camps have been offered by Gateway in Computer Numeric Control (CNC), Industrial Machine Repair (IMR) and welding/fabrication among other industry responsive camps such as medical receptionist, telecommunications, and Certified Nursing Assistant (CNA) and logistics. The programs evolved to include high school students seeking career-ready skills, English language learners entering into healthcare, and reached into the prison system to prepare those re-entering the workforce to have a marketable skill for employability. The programming continues to develop and evolve to align with needs identified in industry, workforce

L-R: Dr. Bryan Albrecht, Gateway Technical College, ATEA 1st Vice President, Robin Hoke, Director for Workforce Development and Business Solutions, Gateway Technical College, Dr. Paul Young, President ATEA Board of Directors and President of Northern Wyoming Community College.

agencies, and economic trends. Secondary goals are to provide opportunities for stackable credentialing to increase workforce opportunities to align with governmental initiatives, and a career and educational pathway.

Boot camps offer a 14-20 week training session in a concentrated rigorous platform to provide necessary knowledge of foundational technical skills and manufacturing best practices for participants to obtain the knowledge, skills and abilities required to secure a semi-skilled entry-level position in the following manufacturing sectors: CNC, Welding/Fabrication, and IMR. Through the training, students earn accredited college credits applicable to future educational programs. Stackable industry credentials earned transcends across industry sectors to increase value of skill sets. The training is inclusive of the development of soft skills necessary for positive work attitudes and behaviors to successfully apply to the workplace to secure and maintain employment.

The development of the camps was prompted by Gateway responding to the needs of the local workforce through its Business Workforce Solutions Division (BWS) outside of the traditional programming offered at Gateway. Business engagement was key to the development, implementation, and ongoing success of the program. The engagement of local employers, workforce development centers, and organization dedicated to economic development has set the foundation for success in a continually evolutionary program model which responds to the changing needs of local employers. From the initial gathering of information when employers first voiced their overwhelming need for skilled workers, through the curriculum development and review process into the job placement phase, employers have been engaged. Employers participate in curriculum review in the development and review of camps.

silver star of excellence

Silver Star of Excellence Award Winner 2016
ALCOA Corporation

The American Technical Education Association is pleased to announce the winner of the Silver Star of Excellence Award for 2016. It is the ALCOA Corporation, nominated by the Tennessee College of Applied Technology Knoxville. The award is in conjunction with the National Technical Honor Society. It is awarded to a corporation or business that exemplifies the highest standards in technical education with support of curriculum, supplies and or equipment, apprenticeships and or internships, facilities, advisory committee members, scholarships, and general support of the advancement of technical education. Past winners include Toyota, national training; Dominion Power; and John Deere Company.

L-R: C. Alan Powell, Executive Director of the National Technical Honor Society; James King, VC of Tennessee Colleges of Applied Technology and ATEA Past President and Mark Rule, ALOCA Inc.

The American Technical Education Association National Awards 2017 Nominations Committee invites ATEA members to submit nominees in the following categories:

- Outstanding Technical Student
- Outstanding Technical Faculty
- Outstanding Technical Program
- Outstanding Innovative Program
- Jean Koch Outstanding Technical Education Achievement Award

Silver Star of Excellence Award to a business exemplifying outstanding support of technical education jointly awarded with the National Technical Honor Society

The criteria for the award is on the ATEA website the forms will be emailed to all members at the end of August due by midnight November 30, 2016. The awards will be presented at the ATEA national conference March 15-17 in Nashville Tennessee.

The American Technical Education Association Board of Trustees, at its March meeting, voted to make all Board positions appointed therefore all now hold an appointed or reappointed term.

The American Technical Education Association Board of Trustees will meet on Wednesday, Oct. 5 4:30 to 6:30 and Thursday, Oct. 6 8:00 to 11:00 in conjunction with the Region 5 conference hosted by Mid Plains Community College, North Platte, Nebraska.

Jean Koch Outstanding Technical Education Achievement Award Winner 2016

Dr. Harry Bowman

Jean Koch Outstanding Technical Education Achievement Award:

The purpose of this award is to recognize an individual who has made the highest meritorious contributions to the improvement, promotion, development and progress of postsecondary technical education and ATEA. The award is presented to an individual who has made contributions or achieved prominence in technical education at the local, state, regional and national levels. To be eligible, a person must be currently in the field of postsecondary technical education or have spent a significant amount of time and energy in support of technical education as an administrator or an industry representative. The nominee or the institution or business in which they are employed must be a member of ATEA. The award was instituted in 2010 in honor of ATEA president Jean Koch, ATEA Board President 2009 to 2010 when she who passed away prior to the national conference to be held in her home state of Indiana. The criteria is based on her qualities and contributions to the technical education and to the American Technical Education Association.

First recipient of the Jean Koch Outstanding Technical Education Achievement Award: Dr. Harry Bowman

Dr. Bowman's Remarks Upon Receipt of the Jean Koch Award

I share this award with my wife Debbie and my son Robert who have contributed many hours behind the scenes supporting me in my work for ATEA. The award has special significance for me because I knew Jean Koch and served with her on the ATEA Board during the time she served as our President. I am also grateful to the ATEA Board of Trustees who took the unusual step of making this selection rather than deferring to the Awards Committee which usually makes the selection. Finally, I am indebted to the Council on Occupational Education for providing financial support for me to participate in ATEA activities since I retired as President Emeritus at the end of 2003.

L-R: James King, ATEA Board of Trustees. Dr. Harry Bowman, Dr. Paul Young, President of ATEA Board of Trustees, Dr. Sandra Krebsbach, ATEA Ex. Director, Brooks Jacobsen, ATEA Board of Trustees and Chair of ATEA National Awards Committee.

L-R: L-R Dr. Bryan Albrecht ATEA Vice President, Diane Bowman, Dr. Harry Bowman, Carlton Carter, TCAT Memphis

2016 National Conference on Technical Education

Orange Beach, Alabama

Plenary Session 1

"Leadership Capacity Building for Manufacturing and Manufacturing related Programs. Ivy Tech Leadership Model for Deans and Chairs of Technical Programs"

Moderator: Steve Wendel, Principal Investigator, NSF ATE Grant "Leadership Capacity Building for Manufacturing and Manufacturing related Programs. Ivy Tech Leadership Model for Deans and Chairs of Technical Programs" Dr. Wendel is the Director of the National Center for Manufacturing Education (NCME) at Sinclair Community College, Dayton OH.

The cornerstone of this project is Ron Bennet's book, "Leadership for Engineers" which combines both personal and professional development. The history of this ATE Project is the 1st Cohort was from Western Kentucky University; 2nd Cohort hosted by Western Kentucky University with Ivy Tech members and 3rd All Ivy Tech—with leadership from Ivy Tech who were in the 2nd cohort. Fellow Principal Investigators are Dr. Bennet and Dr. Mohammad Zaharee, of Purdue University Calumet, Associate Dean and Professor for Graduate Studies. Sinclair Community College has had a long working relationship with Purdue University. Ivy Tech has also had a long working relationship with Purdue University

Niaz Latif, Dean of School of Technology, Purdue University Calumet IN— When the Purdue University- Calumet wanted a partner in an NSF grant they looked for the best practice which took them to Steve Wendell at Sinclair College. Sinclair College has the largest number of NSF grants. Purdue and Sinclair understood manufacturing education and what is needed to meet the demands of industry; but needed to do something with leadership and the facilities. Steve and Naïf wrote the grant that focused on two year manufacturing educators to build leadership capacity and to determine if it made a difference if the participants had both professional and personal development plans. In the 3rd cohort they wanted a larger system wide partnership so chose Ivy Tech Community Colleges. Ivy Tech technical leaders were in cohort 2 but cohort 3 is all Ivy Tech. The 3rd cohort convened at Orange Beach for the ATEA national conference. The Ivy Tech members of Cohort 2 and are leaders of cohort 3 and are on the panel.

Sue Smith, Vice President for Technology and Applied Science, Ivy Tech Community College

"I am proud to introduce the panel and want to note that our entire Ivy Tech technology team is here." Ivy Tech Community College is the largest singly accredited statewide community college in the nation with 150,000 students and 32 campuses. Ivy Tech has four divisions: technology, IT, transfer, and health care the state of Indiana has the largest concentration of manufacturing in the United States.

"The NSF Leadership Training Grant provided an opportunity for the Technology Divison leadership to meet, reflect, analyze, and take ownership of its destiny which included how to address the skills gap. Our presentation is the strategy for the technical division for the coming three years."

The strategy was developed at a meeting convened by Sue Smith and Aco Sikoski, Campus President of Ivy Tech at Valparaiso. They conducted a SWAT statewide, then formed teams on: 1) marketing, recruiting and retaining customers, student retention and completion; 2) faculty recruiting and retaining talent for student success; 3) Technology Division Leadership and Technology Division Student Retention and Completion; and 4) equipment and quality delivery and 5) metrics to identify and implement the most appropriate tools to accurately measure institutional effectiveness and its impact. "We organized around vision, strategic objectives, strategic initiatives, how are we going to get there and how do we see each other. Our goal is to be the best technology division in the country."

AREA 1: MARKETING-RECRUITING AND RETAINING CUSTOMERS, STUDENT RETENTION AND COMPLETION

Michael Szakaly, Dean of Technology, IVY Tech Community College at Evansville IN

Dean Mike Szakaly thanked Susan Perry and Teresa Hess who were also on the marketing team.

"We chose marketing because it is the most frustrating. We want to be the industry recognized credit bearing institutions in Indiana and the first choice. The goals are: students earn a degree or certificate; we close the skill gap, and we increase the quality of life."

"Our process in the 14 regions is 14 marketing processes that target specific audiences in each region with a regional specific message. We determined we would have marketing messages, marketing tool kit, and a marketing budget to promote stackable credentials, national certifications, state of the art equipment and labs. The methods being used are applied learning, internships and apprenticeships all aligned with industry."

"The Ivy Tech Technology Division brand will include messages of partnering with statewide vendors in print, digital, radio with use of their logos. The vendors include: NIMS, MSSC, OSHA, Snap-On, AWS Welding, NCCER, Siemens and Fanuc with the goal a of standard brand recognition for the Technology Division across the state. The target audience is: traditional students from middle school, high school and career centers and their parents; non-traditional which are incumbent workers and those who need skill upgrades; employers; and high schools. Marketing is critical to meet Indiana's need for 645,000 skilled workers in 2025.

"The biggest question in marketing is 'how to get a marketing budget?'" For the strategies go to

ATEA Channel Plenary 1 playlist video 1 and 2.

AREA 2: FACULTY RECRUITING AND RETAINING TALENT FOR STUDENT SUCCESS

James Stokes, Dean of Technologies at Ivy Tech Community College, Richmond

Attract and Retain Faculty—in this area both human resources and marketing are involved in recruiting and retaining. Areas for consideration are contact hours instead of credit hours; credentialing and the need to train to maintain faculty credentials; and resource and marketing support. "Salaries are a barrier to recruitment because to be competitive a starting salary is $77,000 in industry and for starting faculty can be half of that. The same is for adjuncts. We have got to get closer to industry to be in the "49,000 to $80,000 range. 18 year old apprentices are making $25 an hour."

Steve Bardonner, Dean of Technology Ivy Tech Community College, Central Indiana, Indianapolis —Technology Division Leadership the Dean's Position

There have been changes in the expectations of what a dean is required to do. Besides the Internal issues, faculty, equipment, and budgets there are external relations. Deans need to be more visible to local high schools, industry and also statewide. To meet this need we have decided to create an assistant dean position in the regions where appropriate. The assistant dean will work with the vice chancellor of academic affairs and division vice president to support the college mission and college planning and development initiatives. The assistant dean will serve as an assistant to the dean with other responsibilities such as recommending policy trends and innovation, scholarly activities, faculty engagement and credentialing to stay in compliance.

Darrel Kesler, Dean of Technologies, Ivy Tech Community College North East, Fort Wayne IN——

Enrollment Resources and Staffing Management

1st aspect Student Recruitment and Retention

Recruitment is important. We no longer want to be the best kept secret. We are identifying better ways to recruit students. Last fall we had 350 high school students in our building. 87% left thinking about technical education; maybe this would be a career that would fit me. That's simply by bring student into the facilities and engaging them in what we do. If queried effectively the faculty can and will provide exceptional ideas. We have implemented block scheduling and have found it significantly improves retention. We've seen 80% retention in our system with block scheduling. We need foster career development and alumni activities far more because this too will increase student recruitment and retention.

Resource management and acquisition is always a necessity. We are not research institutions; however, we have faculty with NSF research grants, we can do research and engage students in the classroom with these research dollars. They come early in the morning and will work until late at night. These dollars also improve intrinsic motivation for the faculty.

Aaron Baute, Dean of Technology, Ivy Tech CC Lafayette IN

Student Engagement

""Our Commission of Higher Education has an expectation that we develop a plan that will cultivate the retention of students leading to completion. Our methods are in advising, teaching and

engagement. Faculty are mentors but advisors work with registering and getting courses on the schedule." Ivy Tech is creating advisors by region with a specialization in or have subject matter expertise. Institutional research has found the students who are "self-advising". They pull the curriculum and bring the students in so the students understand the program and help them to determine if it is a good fit for them. Deans of Technology have a close relationship with financial aid to assure that the program changes are made with financial aid which minimizes the students' inability to register or remain in the scheduled courses. Students who have not returned are contacted to determine the reason and to facilitate their return to complete their program.

To foster teaching engagement, Ivy Tech has open and flexible labs and lab assistants to both help the students and to track lab time to document demand. Ivy Tech campuses have labs staffed and open when students need them. They encourage student organizations associated with programs or accrediting bodies. The Technical Division will be using or is using hybrid courses or stackable hybrid courses which allow the working students the opportunity to attain multiple credits for one block of time.

AREA 3: EQUIPMENT AND QUALITY DELIVERY

Lonnie Lewellen Dean/Professor, of Technology, Ivy Community College Sellersburg IN

"Ivy Tech is across the state of Indiana which can make it challenging to work together even though we practice continuous improvement and have processes in place. Our mission was to coordinate around primary needs not primary wishes."

To Increase efficiencies they identified multiple programs that use the same equipment. They built a comprehensive chart of: 1) what could be used; 2) replacement cycles; and 3) rated all equipment in one of three categories, poor, good or excellent. They created a system map of "Course to Equipment and Software." The mapping was determined by industry, nationally recognized certifications and faculty advisory board. Ivy Tech can provide a chart for industry for the cost to run the program for equipment, the current inventory, and cost of enhancements to the program. Ivy Tech's Technical Division has maximized statewide buying power with statewide RFP's, and a detailed process for equipment selection. There is a statewide equipment replacement plan with resource indicators.

Quality Delivery

Delivery concepts that improve retention and build quality into the programs are first to reduce the number of courses through block scheduling. In the schedule there are blocks of 8 weeks with 2 classes. It helps on the quality and attracts working people. There is heavy emphasis on labs and 70% of the programs have no electives. The results after 3years, the students finish sooner and there are no course cancellations due to low enrollment. The students see the sequencing. Additionally there are multiple entry points, and stackable credentials embedded as course content. "We contextualize general math meaning the math is there for technology reasons as is communication classes." The process we used to convert the general education to contextualized courses was working with General Education department." The schedule is MWF technical courses and labs and TTH general Ed. "We schedule with the division in mind not the individual program." As an example, all students take basic electricity together. All pathways start with a certificate stackable to an associate degree. The cohorts are experiencing an 82% retention rate.

AREA 4: METRICS

Rodney Lytle, Dean of Technology, Ivy Tech Community College, Kokomo

Metric Committee addressed: Measurement of Institutional Effectiveness, Student Engagement and Learning; Student Outcomes; Establishment of Instruments and Metrics fostering the growth of the division.

"We went through a process of discovery to determine what the data they collected meant; what were the inconsistencies, and are there different program codes." They looked statewide at the state of data/metrics and also compared it to the Ivy Tech Community College 2020 strategic plan.

Vearl Turnpaugh, Associate VP of Applied Engineering and Technology Education, Ivy TCC Indianapolis Central Office

As they were working on metrics, the Indiana House Enrollment ACT 1001-2015 legislated a set of metrics. Ivy Tech will have to report back to the Commission of Education and the Indiana Department of Workforce Development (IDWD) on these metrics.

Plenary Session 2

"Mechatronics: Transforming Skill Sets for High Paying Career Pathways in Automotive, Aerospace and Advanced Manufacturing and Key collaborations"

Plenary session 2: "Mechatronics: Transforming Skill Sets for High Paying Career Pathways in Automotive, Aerospace and Advanced Manufacturing and Key collaborations that have transformed Competency Based Education through NSF ATE Funding of the Automotive Manufacturing Technical Education Collaborative (AMTEC).

Mary Kaye Bredeson, Executive Director of the Center of Excellence for Aerospace and Advanced Manufacturing, Everett, Washington, convened a panel for the ATEA conference Plenary Session 2, drawing upon a collaboration with AMTEC that incorporates the Alamo Academies and the Nissan-Tennessee College of Applied Technology partnership and the Consortium for the Alabama Regional Center for Automotive Manufacturing (CARCAM) an NSF ATEA funded regional collaboration.

Mary Kay became involved through her COE's corporate partner, Boeing, who is ramping up time to delivery using automation and robotics. When developing their plan, they looked to the automotive industry and chose AMTEC in Kentucky and brought to Washington, Dr. Katherine Manley, who had developed 175 tasks in a curriculum for the auto industry. Boeing visited AMTEC and Toyota in Kentucky then went to San Antonio to see the work of the Alamo Academies with Toyota taking workforce deans to experience this collaboration.

Danine Alderete-Tomlin, Executive Director, Automotive Manufacturing Technical Education (AMTEC), National Science Foundation Center of Excellence. We are responsible to our industry partners to develop advanced mechatronics technicians. Career pathways validated by industry partners. We have developed areas for assessment for mechatronics with industry partners. Within competency based models there are pre and post assessments for prior learning. Employer portal to contact employers to apply for jobs. We have a national Delphi survey model that can be used by industry partners. We meet the challenge of industry to "reach the technical competency for multi skill technicians". "We listen to industry partners". What is included and what will be assessed is all done with industry partners.

Industry Partner: Mary Batch, Assistant Manager, Human Resource Development, Toyota Motor Manufacturing—Texas. We use a backyard strategy because of a "huge gap, due to gravitation to 4 year degree programs" so we are proactive to fill the gaps. We bring in 12 high school students each summer as part of the Alamo Academies. They begin with the life essential skills in the summer—learning not working and then rotate into different areas on the shop floor. They learn what a multi-skilled technician needs to do at Toyota. And at end of the summer they report out to senior leadership. They are supervised learners out on the floor engaged with mechatronics. They have a two year working scholarship. They are in both an applied associates degree and high school completion program while learning manufacturing core exercises. They are in a collage program two days a week including summer, three days a week applying it on the plant floor. At the end of the program they have an associate's degree, two years of work experience at a global company, Toyota, and a high school diploma.

Gene Bowman, Executive Director, Alamo Academies, retired Air Force pilot.

The Alamo Academies are an industry driven program. "Just copy the slides you can solve your workforce talent pipeline problems." It has worked for 15 years in San Antonio with over 100 different partners, four of which are Toyota, Lockheed Martin, Boeing, and HEB. We have 15 years of metrics. In 1999 Lockheed Martin started the program for C-5 aircraft maintenance and codified it in 2001 to transfer the knowledge through the pipeline. "It is a contextual learning experience and it works." It is partnerships, not new brick and mortar, using community colleges that have outstanding facilities along with industry and local school districts driving the program. It is based on industry demand, operates with dual credit in career and technical education field (shop course on steroids) at college level-completing a level one certification, industry recognized certificates embedded into the curriculum and a high school diploma. They are stackable credentials as demanded by industry, so the student works towards an associate degree so no wasted hours. We have comprehensive student support to guide them.

There are 30 plus college hours at no cost to the student, Alamo Community Colleges waive the fee for all dual credits. Students are bused to the colleges from 7:30 to 10:00, and high schools buy the books and transportation, industry pays for the internship. Industry gets to see the students first hand before hiring them. They come in their junior and senior year and basically earn a $9000 scholarship. First step "Industry Demand Need," pulling them into an industry that has an in-demand career field. No guaranteed job but they are hiring them. We continuously improve the model, industry gives you feedback. "Lockheed exclusively hire these kids as jet engine mechanics, retention 90%." Toyota meets their multi-skilled technician needs through this program.

San Antonio is majority minority city, which are the demographics of the next American generation. All who finish the program finish high school. They achieve at 22 times the level one certificate rate for the State of Texas which is 15-42 credits towards an associate's degree.

Beverly Hilderbrand, Director of Consortium for Alabama Regional Center for Automotive Manufacturing (CARCAM) www.carcam.org

CARCAM regional ATE consortium, AMTEC is a national ATE Center. CARCAM is Alabama collaboration. Prior to this grant, we have been partners on a DOL manufacturing grant and have shared resources and curriculum in our network. Each college in the collaboration has faculty specialists. We work with industry partners. The Alabama 2020 Plan involves increasing the number of college ready students. The need for the technical level job skills is increasing. ACCS has supported a curriculum specialist to standardize our programs. It is adapted at a state wide level through the plans for instruction. Future technologies identified for the future, Robotics, PLC, CNC, Automated Technology, this carries over into aerospace, and the robots are the same in other industries. We have industry partners, Toyota, Nissan and Southern Company Power. Our twelve colleges surveyed the students coming in the fall semester in programs related to CARCAM. There were 576 responses. First question was: "What made you choose a technical program?" The response was influenced by family and friends more than high school counselors, 63% to 25%. So we need to reach out to the parents to see what the manufacturing environment looks like. Of them, 54% did not attend any technology event in high school which means we need greater exposure to students. We had 40% had worked in an internship; 14% were currently in an internship or coop. There are 26.6% had previously attended an academic program and

are now moving into a technical degree program in order to have enriched employment opportunities.

We try to provide a realistic opportunity to know what the jobs are like. We have responded with tours, career fairs and expos. Most recently Calhoun County, career expo ,2000 eighth graders, Honda was there showing career opportunities. Each college has a STEM and Robotics camps and now are including administrators and counselors.

We show the average salary from the Alabama Department of Labor. Here we show Good starting salary, $43,000. Our slogan is "Manufacturing Pays".

Automotive Manufacturing Technology Degree, varies in each partner college but has the same course core in lean, electronics AC, DC, blueprint reading, specialty training and all are stackable credentials and awards. We are looking at specialty degrees. We are upskilling the current workforce. We work with industry partners with coops, students work part-time and go to school part time. Calhoun has a partnership with Toyota, they have the Alabama version of AMTEC. Gadsden, Central Alabama and Jefferson State had internship/coop with Honda and a weekend school to work program. Shelton State has a program with Mercedes Benz, they designed it to Mercedes exact specifications. Trenholm State work with Hyundai and Flowers Bakery: Bevill with Alabama Power Company and Southern Union with East Alabama Industrial Consortium. Central Alabama and Wallace Hanceville work with multi-business consortiums. The Alabama Department of Labor reported jobs will increase over 25% in top 5 skill sets: 3D modeling, CAD and CAM; CNC technology; Manufacturing Automation Technology: Programmable Logic Controls and Robotics.

CARCAM created a Curriculum Gap Analysis—a survey process model and was adapted at the state level. CARCAM website has the guide to the Best Practices Guide to the Curriculum Gap Analysis.

Kevin Smith, Technical Training Manager from Nissan Smyrna, Tennessee and Lynn Kreider, Director of Tennessee College of Applied Technology, Murfreesboro.

Kevin Smith:

Nissan's program is about getting kids into technical programs to have them realize there are other avenues to careers and without debt. In Tennessee we have Drive to 55 to support this effort.

Lynn Kreider Director of Tennessee College of Applied Technology, Murfreesboro:

Our partnership is with Nissan to build the program and to build multiple training opportunities within middle Tennessee. We are one of the fastest growing regions in the United States. We have Chattanooga with Volkswagen, Memphis with Fed Ex, ALCOA in Knoxville, and Livingston a national training center for Snap-On. We are driven by Drive to 55%, Governor Haslam's goal of 55% of Tennessean to have a degree or certificate by 2025. He supported it with the Tennessee Promise, for students directly out of high school who meet specific deadlines by November and meet benchmarks in their senior year. They are expected to starting acting like a technical employee. Tennessee Reconnect for "all those folks over 24 who want to come back to get a technical degree or certificate or never went to college." Both programs are working very well. Most of us are "max'd" out with daytime, evening and weekend programs. We are "blessed" with an opportunity to build a 160,000 sq. ft. center to meet the training needs. It is supported by Nissan who bought the land. We share the facility for all around middle Tennessee training. We have partners we have 100 advisory board members to support middle Tennessee.

Kevin

As we move into the new facility. We will double the capacity for training. We have tripled production of our Nissan manufacturing in Smyrna from 140,000 vehicles per year to 650,000. Which mean we need maintenance technicians from 2 shifts to 3 shifts means we need higher skilled technicians. preventative maintenance technicians, robotics training to the center, programmable logic controllers, and engineering training and manufacturing leadership training all of that will be moving to this facility.

Lynn

The TCAT has five areas of programming: automotive, welding, machine tool, tool and dye, mechatronics, and collision repair. We support the auto industry. We are in the process of building an integrated logistics center which allows them to bring in everything they need. Our partners are Amazon, Swan, Barrott Arms, 20 to 25 we do industrialized specialized training. We are most proud of as a system is we are one of the last truly technical college system. We do two

things, we train students in technology and we teach them how to be employees. We treat them like employees, regarding absenteeism, reader as they would experience in employment. They are expected to be on time and in class, 7:45 to 2:30 5 days a week a year long.

Kevin

Vendors have donated quarter million in equipment to get in front of buyers and technicians. Mechatronics core competencies, manufacturing leadership council includes: Murfreesboro TCAT, company leadership, Tennessee Board of Regents, Motlow State Community College and Middle Tennessee State University. We have two high schools that have dual enrollment in mechatronics so high school students have one more year to certification in mechatronics and coming through the Tennessee Promise they are debt free and make $60,000. They can go to the community college for an associate's degree. Middle Tennessee State University is one of the first in the national to offer a mechatronics degree. We will be hiring our engineers from them. We use the AMTEC program and work study programs. We have 22 new maintence technicians. We want to get out maintenance programs, we focus on manufacturing cars. The new facility will allow us to go form 20 a year to graduating 80 technicians a year. Nissan does a work-study, 24 hours a week, $16.50 an hour no cost for school, bonus training on the best equipment in the world. Hiring pathways, apprenticeship program using AMTEC through TCAT they score higher 74% than current maintenance technicians at 71%.

Q & A

Who is funding this? Governor Haslam, State of Tennessee, Tennessee Board of Regents supports moveable equipment. We have donated equipment, FANUC is donating equipment. Land purchased by Nissan. TCAT's get expendable equipment. We have the same financial difficulties as other states.

Internships? The Manufacturing Leadership Council (MLC) members support internships. Every student is required to do a work study or internship. Those 80 students will be in an internship or coop program. It gives both the student and the employer to see each other.

Unions? UAW did partner with AMTEC on skill requirements.

Alabama Chancellor's Panel: "Economic Development in the Gulf Coast Region"

The major themes of the conference are partnership and collaboration—our workforce system as a whole operates with partners." Dr. Tim Alford, Conference co-chair

The Chancellor's Panel on the Economic Development of the Gulf Coast Region was moderated by:

Tim Alford Ph.D., Chief Workforce Officer for the Alabama Community College System and Co-Chair of the conference. He has served in government, education and workforce development. Teacher, principal, superintendent and dean in higher education. He has also been the mayor of Enterprise Alabama. He is a graduate of Auburn University, both bachelors and doctorate.

Panelists:

Ed Castile Deputy Secretary of Department of Commerce for Workforce Programs, Alabama Industrial Development Training (AIDT), since August 1993, former Tennessee Industrial Training Service Voc Ed bachelors and master's industrial studies from Middle Tennessee State University. Number one state for economic development site selection

Josh Laney, Assistant Director for Workforce Development for Alabama State Department of Education. Prior worked with Alabama Science in Motion program at Auburn University, the Phoenix City Schools as Science teacher and department chair. BS Auburn in Science Education and Troy University Masters and Educational Specialist degree.

Laura Davis Chamber, Executive Director for the Southwest Alabama Workforce Development Council (SAWDC) President, since 2008 this organization's mission is to attract educate and train student workers and Executive Officer for Gulf Coast Renaissance Corporation responding to rebuilding after Katrina. BS Business Administration from Auburn University and Masters' in City Planning with a concentration in Land Development, from Georgia Tech.

Chancellor Mark Heinrich, Alabama Community College System. Dr. Heinrich's higher education career spans more than 30 years, during which he's held leadership roles in academic, student service and technical/vocational areas. During that time, he served as an instructor, department chair, division dean, dean of instruction, academic vice president,

associate provost, provost, and prior to becoming Chancellor in 2008, served as president of Shelton State Community College.

Dr. Alford's introduction of Laura Chambers, Executive Director of the Southwest Alabama Workforce Development Council (SAWDC):

The SAWDC, nonprofit, was formed in 2008 with the mission to attract strategic partnerships to attract and train students and workers to better meet the need of employers and foster economic growth in a global market place.

The Southwest Alabama Workforce Development Council (SAWDC) was started in 2008 as an industry lead initiative. Industry expansion was on the horizon in Alabama. There was concern that Alabama would not able to meet the needs for a qualified workforce. SAWDC was formed, industry lead the coming together of the state structure of regional workforce councils now codified by Dept. of Commerce.. We are in 8 counties in SW Alabama workforce intermediary. We have a vision of a comprehensive workforce system. "We are broker of sorts." We work with sectors through a workforce cluster strategy to align resources to meet industry needs at a regional level. We have a board of 18, council of 30 plus employers representing 60,000 employees in our region. Our targeted industries are aviation, maritime, industrial construction, manufacturing and health care. We have 3 lines of business: engage industry clusters; influence system of education and training, community colleges are key to that; and inspiring the supply of future qualified workers. Our customer is our employers can say they have a system of workforce development and a qualified candidate pool of workers .

We started with an industry driven World of Opportunity a partnership with industry and school districts, which produces a two day expo of hands on experience for middle school students. We bring in 10,000 8th grade students to 13 worlds of careers. It is two hour experience hand on activities where they talk to them about opportunities. We collect our measures to assure that we are effective. We found enrollment in career tech in Mobile County School System has increased 4 fold since we started.

Dr. Alford: "Ed, tells us about the experiences with economic development and recruitment in the region at companies as such as Air Bus and AUSTAL."

Ed Castile, Deputy Secretary of the Department of Commerce for Workforce Development.

The Alabama Industrial Development Training (AIDT), job specific industrial training for the State of Alabama. In the south we compete on a regular basis for projects. In the world of economic development, you in the community college level fit specifically into the development of this workforce. We in the southeast we have enjoyed in migration interesting and very advanced business in manufacturing and health care. We used to be a low wage state, Alabama is nowhere near a low wage state. As we developed businesses and they have been successful they have created a business climate and career climate is critical to the continuation of this growth. When we do RFP it includes workforce all the way through the cost of it to skill level to retention of it. Where you fit is that development. We at the AIDT are workforce finishers. Our best sources are from the two year colleges. We get the middle skills. We need kids to finish high school and something beyond that.

Laser focus economic development strategy. 3 recruitment, retention and renewal Universities are now in that model. K-12 and community colleges. AS we attract business the greatest asset is this workforce. Everyone who wants to work is working. Soft skills are critical to the jobs here and around the world. Think how quickly things change. We grew up with Nissan and Saturn in Tennessee. We are the 3rd largest auto maker in the country. Airbus came to us as a tanker plan. We won the project and lost it because of a Congressional action. Airbus decided to instead build a commercial jet. The first deliverable came out these past three weeks in Mobile. These things are not quick. In the work that can deliver a trained workforce they need the worker trained when they get them to compete with Mexico and China. We also want to retain. We are focused on that at this time. We have a large port at Mobile. We have ship builders, one is Australian. We needed 6000 welders on the coast. With Engels across the Stateline in Mississippi. It is a constant need in the gulf coast. Growth and replacement it is 300 to 400 a month. It is about collaboration and partnerships.

Josh Laney, Assistant Director for Workforce Development for Alabama State Department of Education. Dr. Alford: What are the major initiatives to assess and help with career planning?

Workforce development comes back to education every time. When you talk about workforce development you are talking about enhancing education base. We listen and communicate among all of those sector partners. What are your clusters telling us they need? When I talk with business and industry I always hope they want a specific skill. What I get every time is they need the students/employee to show up on time, get along with co-workers, and pass the drug test. We are driving the soft skill courses starting in the 6th grade. All Alabama graduates have had career planning, a mandatory course, called Career Preparedness.

What we do in K-12 is expand "their bubble of career awareness". In 6th grade they are exposed to more careers. Their interests are in what they are exposed to which is health care , teachers, or police officer. The students never list manufacturing as a career interest and sometimes they list IT because they play video games. Their bubble is small. Career preparedness includes employability skills and information about what jobs available "right down the road." They are going to live within a 40 miles radius of their home. They learn that those careers with high paying jobs are available in their state so they do not need to leave Alabama.

We have Career Coaches in the schools. There is guidance and there is counseling which deals with mental health and other specific counseling areas. The student to counselor is a 1-500 ratio. Career Tech is guidance which requires a "well informed adult that has the time to do it." Teachers rarely can speak to students about real jobs. We work to have students and parents think about career choices over using a college as a career exploratory experience with the real possibility of "not finishing, in debit with no job and back home." The Career Coaching program is funded through the legislature. The Career Coach's sole job is to expand that "bubble" with college visits, speakers about jobs they have, and bring in outside resources.

Dual enrollment is "awesome." We received $10.3M for career tech dual enrollment throughout the state. Workforce people provide the list of priority training jobs/pathways, the high school student applies for courses in that area that are offered

by the community colleges, if they get in, college tuition is free in high school. In Career and Tech Education, Director Gene Dudley says "It is a loop, right kid, right class, and right time. We at K-12 establish the trained workforce we need for economic development.

Chancellor Mark Heinrich, Alabama Community College System. Dr. Alford: "What are the changes that are occurring and the ACCS relationship to economic development?"

We have experienced changes in the community college system to address the struggles you have heard in this conference. We have a supportive Governor, Governor Bentley. You need support at that level. In Alabama we have 26 community colleges, 86 instructional sites, 11,000 employees, 200,000-250,000 students both credit and noncredit. When the colleges system was set up by Governor Wallace, they wanted an instructional site near every citizen. In the last session the legislature created a separate board for the ACCS. We were with k-12. The two are very large entities. The legislature rightly so created a separate board. It is going well. The Board was sworn in in May of last year.

1-2-7 for every 10 jobs, 7 require an associate's degree or a certificate. The funding has been flipped. The funding goes to the 1-2 and not the 7. You have to be funded to provide what business and industry are demanding. We have a two year transfer program, workforce and adult education. All must work together to serve the needs of business and industry.

Our workforce is made up of 60% middle skills we are fulfilling 48% of that need. All of the initiatives are to increase capacity of middle skills workers. We all share workforce among the ACCS and agencies. Ed and I talk about how we work well together.

We are proud of dual enrollment career tech is a "game changer" it started with $5M. The legislators wanted to talk with me. They asked if they could double the career and tech dual enrollment dollars. The capacity issue is moving in the right direction. 10,000 enrolled in dual career courses. We are proud to have that in our plan.

Prison education is in the community college system. We are working mightily to drop the recidivism rate. We know that skill development and education reduces the return rate by 35%.

We fight in this state about Career and Technical education. We participate in the Career Coach system as well. We participate in "Gear up Alabama" to address the poorest of the poor. "Gear Up" regions need education. The University of Alabama has a $50M grant for tuition remission for Gear Up participants.

The initiative right now is the community colleges in the process of consolidations. We have institutions that have from 13,000 to 500 enrollments. The small institutions are not sustainable. The process is essential and will allow us to better serve our students in areas of the state we are not serving well. We will align with the regional councils Laura talked about. We will be doing a better job to serve business and industry.

Dr. Alford's summary:

Major workforce system partners in Alabama that are not on the panel: Alabama Technology Network, the Department of Labor—our career centers and Adult Education they are a major partner. We brought Adult Education into our workforce arena to enhance its viability and performance. It is a GED program and a first step on a career pathways program to move directly into employment.

"Ed, what are our Workforce council high growth, high demand, and high pay jobs?

Ed Castile:

The Alabama Workforce Council has 40 or so members represented from all walks of business and all locations. George Clark is the Vice Chair of the Council to advise the Governor and the Superintendent of K-12. Those regions that Laura represents are also 75% business people, we have a large contingent to help us discover our needs. We also need to communicate what all we offer. A recommendation is a branding and marketing campaign. The Alabama Workforce system with all partners will be focused on the same campaign. A citizen with a couple of clicks can find their answer for skill development for a career. For business to solve a need inside their business or a government agency to find the data they need. It is a full comprehensive and branding process.

Dr. Tim Alford:

Many of the people in this room lead these initiatives. All stood for a round of applause.

And the answer to the plural of "You All" is "All Y'All."

Governor Robert J. Bentley's keynote presentation March 11

Introduction by Chancellor Mark Heinrich

Governor Bentley is a retired MD and the 53rd Governor serving his 2nd term. Since he has been in office Alabama has gained 80,000 jobs, and 70,000 new future jobs as facilities are constructed in the automotive and aerospace industries. His top successes are: voluntary Pre-K Initiative; right sizing government which saved $1.2 billion in his first term; increases in wages and salaries which are the highest since 2008; and Gear Up Alabama which will transform the poorest neighborhoods. His sons have attended community Colleges and he knows how important community colleges are to our state.

Governor Bentley:

Thank you for coming to Alabama. Mark Heinrich has been an outstanding Chancellor for our community college system. We have redesigned our two year college system and coordinated economic development teams. "Accelerate Alabama" is a program to recruit new industry to the state from other states and other nations; retain companies; and the renewal of companies through "DE novo development" which means out of nothing or out of research. In Alabama innovation and entrepreneurship comes from the two year college system as well as our research institutions.

In Alabama we recognize that we need to recruit and retain skilled workers. We were, in the past, a rural and low skill state. We have transformed Alabama into advanced manufacturing state. Twenty years ago not one automobile was made in Alabama. Last year 1 million were made in Alabama. That transformation was in twenty year span. Alabama recruited Mercedes Benz. After we brought in Mercedes, other automobile manufacturers have come since then. We have Honda and Hyundai and make all of the motors for Toyota in Huntsville. We have been in aerospace starting with putting "the man on the moon." The advanced Saturn 5 Rocket was made in Huntsville. We have over 400

aerospace industries in Alabama. In Mobile, we are painting the first AirBus which will go to JetBlue. They plan to produce 50 planes a year. Alabama knows how to work with Europeans and people from other countries and states.

Advanced training for this workforce is so important. Community colleges train our students for advanced manufacturing. We formed a task force to look at the composition of the Alabama Workforce Council. The Council has some educators but primarily business and industry members who can inform education on what they (the educators) need to train and what they (industry) are trying to hire. We put those groups together. We have cooperation with K-12 education; the two year college system; and we brought in 4 year universities because they produce engineers and accountants. We have a good plan in place. To assure that it continues we put some of it in code so it is in law. We are making great strides. Alabama has on one of the best workforce training systems in the country.

An important part of Alabama's education plan is entitled "First Class" a voluntary Pre-K program. Alabama is ranked at the top for our Pre-K by those who rank it. The budget has been increased every year. It will make a difference in children's lives and a difference in our state 15 years from now when they are ready for the community colleges. There is proof Pre-K works.

Another important initiative is broadband to our rural counties. There are Federal e-rate dollars (franchise fees collected by the Federal Government) available to the states for broadband. Alabama has $300 million to build broadband all over the state of Alabama. The states have to provide a match—which can be a 10 to 1 match. It is pipe and wire and with an extra wire it can go to hospitals for tele medicine to connect the rural areas to doctors and hospital. You cannot have economic development unless high quality high speed internet service.

Enjoy the Gulf region and thank you for what you do. It is all about people. We are all here to serve the people of our state and nation.

The ATEA Journal

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- Refereed/Research
- Reviewed/Descriptive
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Dr. Bryan Albrecht was appointed by the Executive Committee as the 1st Vice President of ATEA. He 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 serves on the American Association of Community Colleges, National Manufacturing Institute Board, Biopharmaceutical Technical Institute Board, the National Center for Occupational Research and Development Board.

He has testified before the U.S. Congress on workforce issues and recently he was an invited guest at the White House representing America's Community Colleges. 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.

Success Factors of Career College Students

By: Stephanie Kidd, Herzing University and Ron Hutkin, University Of Phoenix

Introduction and Background

Beginning in 1991, American sociologists Neil Howe and William Strauss conducted a series of research projects to help the world understand the Millennial Generation, the newest generation in the United States. The Millennial Generation, born between 1982 and 2000, immediately follows Generation X, and in 1999 the first of its members entered the world of higher education. Millennials, as a whole, are more affluent, better educated and more ethnically diverse than any previous generation (Junco & Mastrodicasa, 2007). The Millennial Generation's collective behavior and social habits appeared to baffle sociologists until Howe and Strauss explained them further in their first book published in 1991.

Howe and Strauss (2000) predicted the Millennials would "Rebel by behaving not worse, but better. Their life mission will not be to tear down old institutions that don't work, but to build up new ones that do" (Howe & Strauss, 2000, p. 14). In their numerous publications, they claim their predictions were true; this generation sees the world in a new way and their behaviors support this theory (Howe & Strauss, 2000, 2003, 2007). The research is considered the standard and basis for all other research on this generation, and often is cited in current research. In fact, when it was first released, Howe and Strauss's research was considered the definitive model for this generation.

Howe and Strauss's research defined this generation with seven basic traits: **1**) special, **2**) sheltered, **3**) self-confident, **4**) team-oriented, **5**) conventional, **6**) pressured, and **7**) achieving (Howe & Strauss, 2000). These traits, unique to this generation alone, define this group of young people according to basic behaviors based both on the way in which they are raised and the given circumstance of their time. This specific list of seven generational characteristics helps to identify members of the Millennial Generation: Since the introduction of these seven traits in 2000, they have become the standard by which the generation is measured and evaluated (Carlson, 2005).

The Problem and Participants

Heralded as being completely different from any previous generations, the Millennials bring a completely new set of problems to the classroom. Never before have college students been so connected to their peers. With the constant ability to check in with friends and family, higher educators must battle for the attention of students who are distracted by email, text message, instant messages, Facebook, Twitter, and streaming music and videos—all from a cell phone kept discretely below the desk and out of the view of faculty members. With the gap of knowledge between generations growing, Millennial college students often understand information technology better than their faculty members. In a 2002 survey, 20% of college Millennials stated they began using computers between the ages of five and eight years, and most felt skilled in balancing multiple media outlets at once (Junco & Mastrodicasa, 2007). These students can watch television, text a friend, and search the Internet simultaneously, struggling to maintain an interest in a college classroom where faculty members simply lecture for three hours and expect students to take notes.

Millennials are now an active part of the higher education community, and it is up to higher education professionals to determine how to help these learners be as successful as possible. To further address the issue the major author of this article, Stephanie Kidd, conducted a dissertation research study for the PhD in Higher Education Administration program, to determine if this generation identified with the seven traits established to describe them. A 16-item interview schedule was used with 12 members of the Millennial Generation who were either currently or had been previously enrolled in collegiate career or general education programs.

Highlights of the Research Study

The study looked to answer the following research questions: **1**. How do the seven traits of the Millennial Generation define the higher education experience as perceived by Millennial Generation college students? And **2**. How might higher education leaders use the perceived associations of Millennial Generation college students with the seven traits to influence Millennial Generation college students in a positive manner?

Study participants were members of the Millennial Generation, meaning they were born since 1982, and were recommended for this study by the Department of Admissions at a small proprietary college in urban an area in the Midwest. The 12 study participants included seven females and five males, ranging in age from 20 to 30-years-old. The

participants were born in various places across the country, but at the time of the study all currently lived in an urban area in the Midwest. The participants had varying levels of education. The highest level of education was a Doctor of Chiropractic. The participant with the lowest level of education was just beginning a Diploma program. Seven participants were married; four were unmarried, while one was divorced.

Analysis of the Data

Data were gathered using a 16-item list of questions designed by Dr. Kidd. The items were aligned with the research questions. All of the interviews were conducted by the researcher. In the data analysis, themes and connections were formed by evaluating all 12 interviews according to each of the seven traits. The responses to the interview questions were scanned for common words and key phrases, and then similar responses were grouped together to form overall themes. The participants formed and discussed connections which resulted in the formation of four major themes:

> Feeling special to their parents,
>
> Being raised to have self-confidence,
>
> Being pressured to achieve, and
>
> Feeling influenced by technology in education.

The participants did not overwhelmingly agree with all seven of Howe and Strauss's (2000) themes. While they identified with feeling special, self-confident, and pressured, they did not identify with sheltered, achieving, team-oriented, or conventional. The following findings were based on the overall themes found in the data

Themes in the Research

The research conducted by Dr. Kidd led to the creation of a series of themes that can allow Millennial generation college students to find success in higher education. These themes were developed through the assessment of the interview data, and the establishment of connections between responses from the participants.

Theme 1: Helping Millennials Feel Special

If it is indeed true that members of the Millennial Generation are made to feel special by their parents (Howe & Straus, 2000, 2007, 2008), the world of higher education can use this knowledge to better engage these students both in and outside of the classroom. This theme furthers the research conducted by Howe and Strauss (2008), and adds to the body of knowledge regarding how Millennials are made to feel special.

Based on the stories that documented the lived experiences of the 12 participants in this study, Millennials come from families where children are singled out and allowed to feel supported for who they are and what they do. This finding suggests that Student Services and Academic Departments could help students make the transition from high school to college easier by continuing to single them out and make them feel special as they begin college.

A number of study participants said that they struggled during their first semester of college because there was no one to support them individually or they were not held accountable for class attendance or completion of assignments. The participant responses indicate that a first-semester program focusing on individual support of students, could help them feel more of the one-on-one attention they were used to from their younger years. Based on this study, participants were not lacking knowledge of "how the world works," they were simply missing out on the one-on-one attention the received from their parents when they lived at home. Colleges can use this sense of "specialness" in recruitment of college students, involving parents in the college decision-making and recruitment activities.

Howe and Strauss suggest faculty members should talk less and ask more questions (2007), allowing Millennial students to express their ideas in the classroom. If students have been coached throughout their education to feel special, then having the chance to speak their own truths could continue this trend. Additionally, Howe and Strauss suggest faculty members allow Millennials the chance to tell their own stories using narratives as a way to connect with the classroom material (2007). This practice also allows Millennials to connect with their classmates and their faculty members as individuals, something Howe and Strauss suggest will create more engaged students who will achieve more academically (2007).

Theme 2: Continuing Trends of Self-Confidence

Nine of 12 participants (75%) stated their parents raised them to have self-confidence and this self-confidence continued in the college environment. Higher education administrators and faculty can reinforce this trend by continuing to positively reinforce both academic and personal success of students.

In the college recruitment process, these Millennial college students focused on their self-confidence. So, they might need to hear about future possibilities available to graduates to make the right decision in a college program. Administrators could create programs that allow for previous students to speak about the choices they made while on campus, focusing on successes

and providing potential students the chance to see what their continued academic success could mean for them. If given additional opportunities to meet one-on-one with faculty advisors, students might feel confident to ask for help.

Self-confidence can be reinforced by faculty members who set high expectations and then encourage students who meet the high standards. Strauss and Howe suggest faculty set the bar high, as Millennials possess the ability to achieve when pushed (2007). Additionally, self-confident students are likely to get behind activities like pep rallies and award ceremonies. Celebrating the success of these students is likely to reinforce their confidence, so administrators should consider awards for academics and school involvement.

Theme 3: Helping Millennials Understand Pressure

The participants in this study all said they felt pressure from their parents to achieve, in academics, sports or both. While for some this pressure helped them to be successful, for others it led to unnecessary stress deterring them from success. During first semester or quarter courses, faculty members could further explore ideas such as pressure from family to achieve. If students understand where there pressure comes from, they might better understand how to turn it into something positive rather than something stressful.

Most of the study participants were able to piece a story together to explain the family situation that led them each to feel pressure from their parents. These participants understood where the pressure came from, and so they were able to see it as something positive. Not all Millennial Generation college students can think this critically. If a student does not understand the family history behind the pressure, he or she might simply see it as pressure, and that can cause stress and result in college attrition. Strauss and Howe as well as the study data suggest faculty members encourage students to work on team projects, which can allow them to push themselves to work harder (2007). Group work also gives students the chance to express themselves and their ideas, something at which this group can excel when given the chance (2007).

Theme 4: Advancing Technology for Millennials

Howe and Strauss discuss the tech-savvy Millennial Generation college student (2008), suggesting that Millennials will know more about technology than their professors.

Results of this study add to that body of knowledge, as almost all study participants (11 0f 12) discussed a desire for technology in the classroom.

If Millennial Generation college students are more skilled with technology than *previous* generations, then higher education instructional leaders should embrace this fact and recruit staff members with the skills to keep up with these new students. With an average college faculty age of over fifty, today's college leaders likely finished their own degrees in the 1970s (Oblinger, 2003). The college experience higher education leaders had was very different from the experiences of today's college students.

As more and more students take entire college courses online at some schools, other schools miss the mark by continuing to provide only traditional classroom experience. If the school is not apt to provide a course online, online technology still could be embraced. Perhaps hybrid courses that provide some classroom learning as well as some online learning are the ideal new model. If these students are indeed as technologically savvy as research indicates, then it only makes sense for higher education administrators to embrace this and use it to help these students find success.

Conclusions and Recommendations

Based on the analysis of the data, the following conclusions and recommendations are offered for instructors of technical, career, and general education courses:

1) A class designed specifically to assist students with the transition into college could help students achieve success and reduce attrition.

> **2)** On campus, students should be encouraged to relax and manage stress. This could be accomplished by providing areas on campus for students to simply connect and unwind.
>
> **3)** Faculty members could connect with students on Facebook as a better means of communication or text or email more often and call students less.
>
> **4)** Colleges could provide online support for students through the use of 24-hour online tutoring or even 24-hour technical support.
>
> **5)** Faculty and staff professional development activities that focus on the characteristics of Millennials are needed.

These recommendations are in line with some of Howe and Strauss's original thoughts about the Millennials, but it is important to note that not all of the traits defined by these researchers were validated in this research. Howe and Strauss's research is considered to be the first and most substantial amount of generational theory research conducted by any one research team about this specific generation; analysis of Dr. Kidd's data is limited based on the small number of research study participants.

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Cost to becoming an AMTEC college? There is an agreement, engage in the research, come with an industry partners. You are part of the research cycle and are helping with the model.

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Numbers in the next 10 years? In San Antonio Toyota, if it expands may need 400 more skilled technicians.

The current data finding is nationally the graduation rate in two year colleges is 60% while in Ivy Tech it is 28% for full time students and 11% for part time. Only 3% of programs graduate more than 50% of the students and those are all cohort programs such as apprenticeship and nursing.

They found no systematic data reporting between Ivy Tech Community College and the IDWD. They will be working to mesh the data back and forth. The most applied general rule is programs are reviewed for meeting 30 students as a minimum

to continue. There are "stand alone" programs that may get an exemption.

Indiana moved from enrollment based funding to completion funding for degrees and technical certificates. Career and Technical programs were left out of the funding model which then sways programming. Ivy Tech currently has a metric for 25% completion rate within 6 years and job placement reported 1, 3 and 5 years with salary reporting In 2021 it will be the metric of 75% job placement; 50% completion in 3 years. That cuts the "on completion" time by at least 50%.

Bridging the Gap Between the Classroom and Real-World Through Capstone Projects

By: Shahnaz Aly, OAA, LEED AP, Architect & Assistant Professor

The Architectural Science (AS) program in the Department of Architectural and Manufacturing Sciences (AMS) at Western Kentucky University (WKU) is a four year program accredited by The Association of Technology Management and Applied Engineering (ATMAE). The program is designed to provide students with a practical architectural education, combining an understanding of the philosophy of building design with applied technical knowledge of construction systems and materials (Western Kentucky University Undergraduate Catalog (2015-2016), n.d.). Design studios and technical documentation courses form the main-stay of the curriculum. Culmination of the program is a two-semester capstone project undertaken by students in their final year of study. During the capstone students work on research projects utilizing skills and knowledge from prior courses in the program (Western Kentucky University Undergraduate Catalog (2015-2016), n.d.), to arrive at solutions that demonstrate their design, technical, research and management skills.

The capstone sequence is built around two courses: AMS 488 Comprehensive Design and AMS 490 Senior Project taken in the fall and spring semesters respectively. The capstone revolves around design with research supporting design. The design component of the capstone follows typical services performed by professional architectural practices; these include schematic design (SD), design development (DD), construction documents (CD), bidding, negotiations and construction contract administration (CA) (Defining the Architect's Basic Services, 2007). The capstone sequence culminates with CD.

Viewing the capstone via the courses that comprise it, AMS 488 focuses on project development and SD. Project development extends through the first 10 weeks of the semester. It involves (1) project proposal: project overview, background, goals, areas of research, and anticipated end product, (2) research and data gathering: case study analysis, research on relevant sustainable design elements, required building codes, programming (includes all the wants and needs of the client and spaces to be provided in the facility) and site selection for the proposed facility. SD begins upon completion of project development. Here students develop preliminary design concepts, two-dimensional drawings and three-dimensional models. Presentation of projects to faculty and industry professionals occurs at the end of the semester.

Table 1 shows the areas of assessment of AMS 488.

AMS 488 - Course Modules	Course Topics	Grading Percentage
Project Development – Project Proposal – Research & Data Gathering	Programming Code Analysis Case Study Research Research on sustainable elements	25
	Site Acquisition and Analysis Site Visits Computer Generated Drawings of site	15

Schematic Design	Spatial relationships
	Massing concepts
	Interim presentations
	   – graphic communication skills
	   – oral communication skills
		35

Weekly Progress	Submission either electronic or hard copy of progress made each week Class participation	15
Final Evaluation	Final Presentation – schematic design Project Manual	10

Table 1. Areas of assessment of AMS 488

AMS 490 primarily comprises of DD and CD. Comments received during final presentations in AMS 488 are incorporated by students at the start of AMS 490 completing SD. During DD students work on incorporating structural and basic mechanical systems into their projects, refining floor plans, building elevations and designing interior spaces and elements. Poster presentations at the WKU Research Conference mark the completion of DD. The final component of the capstone is CD where students create detailed construction drawings. Students are also required to create visually appealing imagery for presentations. Culmination of projects involves students presenting their work to faculty, industry professionals and peers. Table 2 show the areas of assessment of AMS 490.

AMS 490 - Course Modules	Course Topics	Grading Percentage
Schematic Design	Incorporation of comments from AMS 488	10
Design Development	Structural concept Mechanical concept WKU Research Conference presentation Weekly Progress	35
Construction Drawings	Detailed drawings Weekly Progress Final Drawing Delivery	35
Final Evaluation	Final presentation to AMS faculty and Industry Professionals	20

Table 2: Areas of assessment of AMS 490

The capstone course sequence requires the student to synthesize and apply knowledge from prior courses into the culminating project. Faculty change roles from lecturer to mentor, providing the student a higher degree of freedom to chart the course of their projects. This forces the students to become independent, creative and critical thinkers. Through the shift in role the faculty guides the students to achieve success in the course, preparing them for the real-world. This shift in roles has been espoused by Taylor, Magleby, Todd and Parkinson (2012). During their evaluation of team based capstone courses at Brigham Young University, they concluded that for a successful capstone experience faculty have to become mentors and coaches to students, relinquishing the role of the traditional lecturer.

Literature review

Capstone projects in the AS curriculum are a very important part of students experience at WKU. Durel (1993) sees the capstone course as a "crowning course" and a "rite of passage" where students endeavor to apply all that they have learned in the course of their study to a project thus demonstrating their ability to be successful as graduates. According to Prokopy (2009), projects in a capstone require more intensive problem solving and critical thinking by the student which helps them gain not just technical acumen but also improves soft skills through meetings and presentations that occur during projects. In engineering programs at Brigham Young University, Western Kentucky University and University of Toledo the capstone project is a very important part of students education and forms a way of demonstrating capabilities of transitioning from the classroom to the professional field (Todd, Sorensen, & Magelby, 1993) (Cambron, Collett, & Wilson, 2008) (Franchetti, Hefzy, Pourazady, & Smallman, 2012). Capstone

projects in the Architectural Engineering program at Cal Poly, San Luis Obispo integrate industry partners enabling students to enhance their leadership skills (Nuttall, Mwangi, & Baltimore, 2009).

The AS program affords students opportunities to work on real-world projects through WKU's Habitat for Humanity chapter housed in the AMS department, the Architectural & Manufacturing Science Institute (AMSI), internships, and through faculty led community engagement activities integrated into courses. In past endeavors students have successfully worked with local government agencies through the Architectural Documentation III course to analyze existing facilities and propose adaptive reuse of such facilities (Aly & Leach, 2013). According to Brundiers, Wiek and Redman (2010), service learning, problem and project-based opportunities "focus on real-world problems, and expose students to the corresponding real-world settings in communities, businesses and governments" (p. 311).

Historically capstone projects in the program have been hypothetical where students elect to work on a building typology of their interest. In recent years, a number of students have begun working on real-world projects. Many of these projects are a result of connections that the faculty has made with local government agencies and industry due to past successful endeavors or students themselves researching needs of their home towns.

According to Grossman, by working on real-world projects students learn to exercise judgment, manage problems, deal with ambiguity and perform tasks for which there are no immediate and direct solutions (2002). Real-world experiences in a capstone course help students apply skills acquired during their education to solve a real problem and satisfy constraints put forth by clients, enabling students an opportunity to get an insight to what they could expect in the professional world (Hanna & Sullivan, 2005).

Real-world Projects in the Capstone Sequence

Project selection is a critical component of a capstone course (Padmanabhan & Katti, 2002). Faculty review project proposals received from community and industry partners to ensure that they will capture required components of research, will present a sufficient design challenge, have a scope that would fit the capstone timeline and meet the rigor, objectives and goals of the course.

Case Study 1

The project involved the design of an Ice-Skating Rink to be located in the historic downtown of Bowling Green, Kentucky. The City Manager of Bowling Green anticipated that this facility would become a part of the revitalization of the downtown core. Apart from functioning as a recreational facility, the structure was also envisaged as a community gathering space. Extensive research was conducted on requirements of an NHL size ice-skating rink, building code regulations, spectator seating and sustainable elements along with case studies of similar facilities. The proposed design solution incorporated spaces for administrative functions in cube-like modules. The cube-like modules were combined with a dramatic but flowing structure for the rink, representing the fluidity of ice skating as an art form. The resulting design was a modern facility intended to become an icon for the city and its residents (Figure 1).
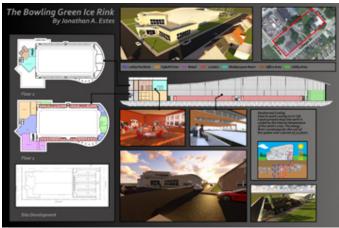

figure 1

Case Studies 2 and 3

The projects involved the design of a mixed-use facility in Owensboro, Kentucky. To enhance its redevelopment effort the city was seeking design ideas for a vacant property that it owned along the waterfront. The Community Development Director of Owensboro was the initiator of this project and sought two design options (which will be addressed as Case studies 2 and 3 respectively) for the site. Design solutions were required to follow guidelines set by the Owensboro Metropolitan Zoning Ordinance. Research was conducted on building codes and regulations, appropriate sustainable elements, similar building types and a program was created for the facility. Case Study 2 included restaurants and retail on the lowest level and condominiums on upper levels. Research was also undertaken on condominiums layouts in

order to create spaces in each unit that would be compact and have appropriate circulation. The design philosophy was to incorporate the historic look of the surrounding area in a modern context and to allow great views from virtually any space in the building. The resulting design created an exterior character and interior ambience that showcased the historic aspects of the City and the progress that the city was striving for, the intent of which was to draw people to live in the area (Figure 2).

figure 2

Case Study 3 was a much bigger building that would have restaurants, retail, office spaces, boutique hotel, condominiums and gymnasium distributed over five levels with a garden on the roof level. Since the site area in case study 3 was approximately twice the site area of case study 2, the amount of work entailed in this project was substantial compared to other projects in the capstone. For this project it was decided that the hotel and condominiums would be designed in detail and all other requirements would be conceptually demarcated. Inspiration for the design was the river and each level of the building took on a different wave form creating a striking overall form (Figure 3).

Discussion

Feedback from community partners was received during student presentations, follow-up conversations as well as a survey. The received feedback indicated satisfaction with completed work. Community partners were of the opinion that project drawings and images benefitted their organizations and gave them the ability to see future potential of such developments. It offset costs of conducting preliminary feasibility studies; typically 1% of project costs (Twomey, n.d.). Community partners were of the unanimous view that requirements stated at the start of projects had been fulfilled

figure 3

by students. They were very pleased with the quality of drawings and imagery. Community partners felt the need for better communication with students while project designs were being developed. They would have preferred regular updates which would have given them an opportunity to provide feedback during the process.

Working on real-world projects took students outside their comfort zone and facilitated engagement with the community partner who was essentially their client. This gave them insights into expectations of the professional world, constraints put forth by clients, designing to fulfill client needs and importance of communication. Students had to work on their soft skills not just for project presentations but also for presenting viewpoints to clients during meetings conducted at various projects stages. While students were made aware of project goals by community partners at the start of projects, detailed requirements were ambiguous. In these situations students had to exercise judgement and through research create a detailed program for facilities they were designing. In design courses students typically create artistic design solutions without any constraints. While working on real-world projects in the capstone students had to account for constraints put forth by clients as well as local ordinances of the city they were designing in.

Students provided feedback about the projects through a survey and during class discussions. Student feedback indicated that these experiences benefitted and prepared them for the professional field as they facilitated interaction with a potential client. One student commented, "It set limitations based on client wants/needs very much like my current job does." Students were of the unequivocal view that they would encourage colleagues in future capstone courses to seek out real-world projects. There was a consensus that working on

a real-world project helped prepare them deal with client demands and restrictions. Similar to community partner feedback, students indicated a greater need for adequate and timely communication with the community partner.

The importance of communication was a key finding of feedback received from community partners and students for the success of real-world projects. Due to course deadlines, timely and synchronized communication between students and community partners was not always possible. Upon reflection, the faculty felt that in the future, it would be beneficial to conduct an initial meeting involving the community partner, student and faculty during which mutual expectations would be set forth with greater clarity. During this meeting timelines would also be established for comments and reviewing progress. Additionally, the faculty would become the moderator and oversee the entire process from both perspectives while simultaneously helping students ease into a new level of responsibility.

Conclusion

The primary aim of the capstone sequence is to challenge AS students with projects that require them to apply to the maximum their training, skills, knowledge and imagination to create artistic designs. Tangible real-world projects add further to the design challenge as students are constrained with adhering to code, to client requirements and specifications while striving to be as innovative as possible.

Additionally, students working on real world projects also have on them demands of communicating with community/ industry partners, clearly and on time. These challenges, while significant are also precisely what enable real world projects to make for a better capstone experience. Real-world projects increase the confidence of students and help them take the next step from student to professional.
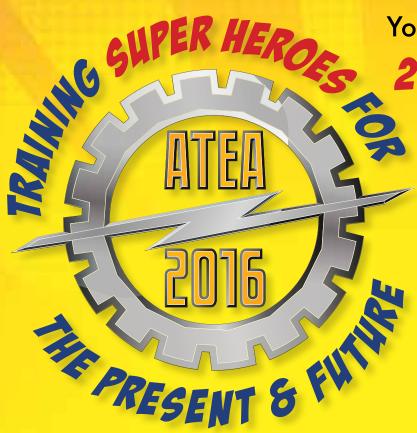
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OCTOBER 6–7

Welcome from North Platte Nebraska…home of Buffalo Bill Cody and Bailey yards the world's largest Rail Yard!

The committee would like to invite you to join us in Nebraska for the 2016 ATEA Region 5 conference to be held October 6 – 7, 2016. We are working hard to prepare an amazing conference for you with sessions in all disciplines and tours that promise to be one of a kind!

The conference will be chaired by Co-Chairs Kent Beel, Mid-Plains Chair of Applied Technologies, and Cathy Nutt, Business Instructor, Mid-Plains Community College.

We are excited to be hosting the region 5 conference and hope you all will make the trip to join us in western Nebraska in October.

Watch for online registrations to open in June!

MID-PLAINS COMMUNITY COLLEGE

This process is evolutionary with camps like the Welding adjusting in response to employer needs. An example is the camp offered prior to 2012 are different than the camp today with the addition of TIG welding and fabrication. Each generation of the camp is directly related to industry needs expressed during interactive curriculum, evaluation and current and projected job openings.

The program has the opportunity to elevate each individual's personal circumstances regardless of past academics, work history or legal barriers. A graduate of Boot Camp, Mr. Harris moved his life beyond a criminal background to the identity of trusted and skilled employee of Bradshaw Medical Inc. This program reverses that talent loss. Mr. Harris wrote an endorsing letter as did the vice president of operations. Mr. Harris wrote," since I have graduated from the Gateway/WEDD Boot-camp program, I have been employed full-time and have currently come back to assist in helping train new

students become better employees in the future. I love my life and I love Gateway/WEDD Bootcamp program."

James Nelson, Vice President of Operations at Bradshaw Medical Inc. wrote, "The Boot camp has been a very beneficial program for our company. The Bootcamp program provides them with individuals who have the basic understanding of CNC equipment and its operations and allows us to develop them further following through with basic background training from Bootcamp." He serves on the advisory committee and applauds Gateway for working closely with industry to identify their specific needs and to have input into the specific Boot camp program, work with instructors, and to develop the programs to ensure the candidates have sufficient training that will benefit potential companies desiring this program's graduates." This input of industry in the development is key to its success as well as the intensity of the pace and a high standard of work ethics inspire the students and gives them credibility on the workplace.

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