Broadening Female Participation in ATE: Hear from ATE Educators Who Have Had Success

Panel Moderator: Donna Milgram, Executive Director of National Institute for Women in Trades, Technology & Science, PI of ATE National Online WomenTech Project

WomenTech Educators Online Training: Interventions Work

ATE Success Story

A manufacturing program at Mount Wachusett Community College, MA (ATE Project) went from 1 female student to 9 female students out of 13, an **800% increase the next semester** after the online training. Retention of all students, male and female, increased from 50% to 100%.

More Recruitment Results

Computer Networking & Systems Admin

11 new female students
45% increase

Texas State Technical College—Waco, TX*

Engineering Technology

2 females students to 12
500% increase

Patrick Henry Community College, VA* (ATE Mentor-Links Project)

Emerging Technologies

1 female student to 15 out of 17
1,400% increase

Athens Technical College, GA

Results achieved the next (regular) semester after the training
*Includes 1 summer term between implementation and results.

More Retention Results

Engineering Technology

50% → 100% retention of female students

Patrick Henry Community College, VA
(ATE MentorLinks)*

Engineering Technology

67% → 100% retention of female students

A Northwestern Community College
(ATE Project)*

Computer Programming

**Females = 0% → 86%
Males = 70% → 93%
45% Aggregate Increase**
(in 6 months)

Del Mar College, TX (HSI)

**Results achieved the next (regular) semester after the training
*Includes 1 summer term between implementation and results.**

Interventions Work: Less than One Year

Name/Job Title	Career Pathway	Results	Institution
Mark Evan, Chair of Emerging Technologies	**Emerging Technologies**	1 female to 15 out of 17 (1400% increase)	Athens Technical College, GA
Ken Mays, Director of Automotive Technology	**Automotive Technology**	Female & Male completion: 38% to 68%; continuing in auto program 38% to 50%	Central Oregon Community College
Adele Wright, Professor of Electrical & Mechanical Engineering Technology	**Engineering Graphics Course**	11 females to 20 on average (82% increase)	Columbus State Community College

WomenTech Educators Online Training: Interventions Work

Did You Know?

The WomenTech Educators Training has consistently had excellent results with underrepresented students including students of color—especially with Hispanic-Serving Institutions (HSIs).

For example, HSI Broward College in Florida increased female enrollment by 200% from 5 to 15 women in targeted intro computer networking courses in only 1 regular semester after the training. Retention of female students also increased from 80% to 100%.

NSF-funded WomenTech Educators Online Training Program

➢ **10-week asynchronous team-based training/4-day Bootcamp version**

➢ **5.5 hours Customized Feedback per team**

   ▪ **Team Orientation**

   ▪ **Recruitment and Retention Plans**

   ▪ **Laser Coaching on Target Audience**

   ▪ **Support for Implementation**

➢ **Develop Recruitment and Retention Plan templates**

➢ **2018 Training Available via Institutional Membership**

➢ **Return your yellow interest form to Donna Milgram**

Most Important Recruitment Strategy: Target Audience

You can have the right strategies and the wrong target audience – not effective.

➢ **Go after the low-hanging fruit!**

➢ **Strategies that can result in increased enrollment in 1 year (not long term, i.e. middle school students)**

➢ **Focus on internal market and feeder programs**

➢ **Focus narrowly not broadly**

➢ **Multiple marketing touches**

➢ **Female role models (only works with the right target audience)**

Takeaways

Note at least one strategy from each presentation that you can replicate back home

Athens Technical College Outcomes

- **Presenter:** Mark Evans, Chair of Emerging Technologies
- **Targeted Career Pathway:** Emerging Technologies
- **Completion Rate:** Maintained a completion rate of 90%+ throughout

Emerging Technologies Course Enrollment Data				
Timeline	# Female Students	# Male Students	Total # of Students	% Female
(Baseline) Spring 2015	1	16	17	6%
(After Training) Fall 2015	15	2	17	82%
(After Training) Fall 2017	22	48	70	31%

Athens Technical College Outcomes

47% of new certificates offered through Emerging Technologies program awarded to women:

➢ **Video Game Design and Development Certificates**
➢ **1st round of certificates – no baseline data**

Video Game Design & Development Certificates				
Timeline	**# Female Students**	**# Male Students**	**Total # of Students**	**% Female**
Fall 2016	**20**	**23**	**43**	**47%**

Biggest Take Away from June-Aug 2015 WomenTech Educators Online Training:

Need to change the culture:

➢ **Shift from recruiting high school students to internal female audience at college**

➢ **Reframe recruiting internally from poaching to an opportunity to retain female students not admitted to nursing**

➢ **Professional development for counselors so they shift from presenting female students with traditional career paths to emerging technologies**

Most Effective Recruitment Strategy

Personal encouragement:

➢ **Personal encouragement conversation: Male instructor used Spheros and Drones to start a conversation with female students in Health Sciences hallway**

➢ **Female role models: Girls Who Code Day Hackathon in open classroom with Big Maker Space and female students**

Recruitment Tactics

What worked:

➢ **Sphero® Robots & Drones in Hallway: 2x month where prospective nursing students congregated on big couches**

➢ **Girls Who Code Hackathon: 1 per semester**

➢ **Email campaign to above groups**

Ineffective Recruitment Strategy

Example of a recruitment strategy that has not shown results:

> **Luncheon Learns events never took off – no one came except existing female students**

Institutional Roll Out Benefits

Retention within the institution:

> Students didn't leave college when they didn't make it into the nursing or radiology program

Central Oregon Community College Retention Outcomes

- **Presenter:** Ken Mays, Director of Automotive Technology
- **Training:** October 2016 WomenTech Educators Online Training
- **Targeted Career Pathway & Introductory Courses:** Automotive Technology

Automotive Technology Course Completion & Persistence Data		
Timeline	**COMPLETION for Females & Males in All 5 Introductory Courses**	**PERSISTENCE in Program for Female & Male Students**
(Baseline = Before Training) Fall 2016	38%	50%
(After Training) Winter 2016	50%	68%
(After Training) Fall 2017	First 3 weeks = 100% for 5 female students	TBD

Biggest Take Aways from Oct 2016 WomenTech Educators Online Training:

➢ **Targeted strategies: Need to focus efforts and not rely on broad brush solutions**

➢ **Collaboration & group work: Students prefer to work in groups not independently**

Most Effective Retention Strategy

Weekly check-ins with students:

➢ Students participate in weekly meeting (2 held)

➢ Students who don't show up receive follow-up phone calls

➢ Assistance with school administrative issues and help with textbook costs resulted in improved retention

➢ Only 1 student reported a learning issue solved by one-on-one lab time (female)

Photos of Female Role Models

Example Recruitment Event Flyer

Columbus State Community College Outcomes

➤ **Presenter: Adele Wright, Professor of Mechanical Engineering Technology**

➤ **Training: October 2016 WomenTech Educators Online Training**

➤ **Targeted Career Pathway & Introductory Courses:**

   Engineering Graphics

Engineering Graphics Course Enrollment Data				
Timeline	# Female Students	# Male Students	Total # of Students	% Female
(Baseline = Before Training) Fall 2015 & Spring 2016	11	122	133	8%
(After Training) Fall 2016 & Spring 2017	20	144	164	12%

Biggest Take Aways from WomenTech Educators Online Training:

◊ **Female role model photos:** Adding photos of women to the website was so easy

◊ **Review your data:** Many female students don't make it into engineering because they drop out during the math and physics sequence not because they are a woman in a male-dominated field

Most Effective Recruitment Strategy

Personal Encouragement & Female Role Models:

➢ **Embedded Advisor trained to give personal encouragement**

➢ **Female Role Model Story on website & in recruiting brochure (Erica Miller)**

Other Recruitment Tactics

➢ **Female presenters to high school classes**

➢ **Encouragement video posted to departmental website**

➢ **Manufacturing Panel – including female students**

➢ **Recruitment posters – classrooms of internal markets, multiple campuses**

Female Role Model Photos & Quotes

➢ **Erica Miller, Electro-Mechanical Engineering Major:**

➢ **"I really like thinking through problems and evaluating solutions – and that's exactly what I'm doing on the job now. [...] I've made some really good friends. Girls shouldn't be intimidated - we need more women in the field!"**

➢ **Her full story here:** **http://www.cscc.edu/stories/2-year-degree-stories/Erica-Miller.shtml**

Female Role Model Photos & Quotes

Shane Bendele, Mechanical Engineering Professor

Hilary Johnson, Columbus State Graduate

➢ **Hilary Johnson, Mechanical Engineering Major:**

➢ **"My particular company is only 3 years old. There's no manual for this process. Going to Columbus State gave me that base that I needed to be able to build off that and further my career."**

➢ **Full story here: http://www.cscc.edu/stories/faculty-stories/Bendele-Johnson.shtml**

Recruitment Strategy Still Want to Implement

Recruiting from Physics Classes:

➢ **Post encouragement video to Blackboard shells**

➢ **Follow up with classroom visits by myself and our advisor**

Effective Retention Strategy

Physics Tutoring:

➢ **Offered at times based on our students' schedules**

➢ **Offered in an Engineering classroom**

➢ **Provided by an Engineer**

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WomenTech Online Training Membership

What's Included in Membership Levels	School-Level	Center-Level
Who is this membership best for?	Schools	Centers, regional consortia
Registration for a WomenTech Educators Online Training (Includes 6-Months Follow-Up Support)	1 team/ 1 career pathway	3 teams/ 3 career pathways
STEM Success for Women Master Class	**10 users**	**30 users**
Women in Technology Outreach Kit	**10 users**	**30 users**
WomenTech Classroom eBook	**10 users**	**30 users**
Monthly Members-Only eNewsletter	**10 users**	**30 users**
Bonus Group Opportunity		Additional 1-Hour Call with Donna
Membership Price	~~$12,000~~	~~$36,000~~
ATE PI Conference Special Price: *Fill out yellow interest form to secure special price.*	**Now: $10,000**	**Now: $30,000**

Take the Next Step

➢ **ATE PI Conference Special Price**

➢ **Only space for 20 school partners**

➢ **I will follow up to schedule a conversation**

Fill out the yellow interest form now

Free Resources from IWITTS

Proven Practices Collection

www.iwitts.org/proven-practices

Webinar Archives

www.iwitts.org/free/webinar-archives

Female Role Model Tutorial

www.iwitts.org/free/tutorial

www.iwitts.org/free

Watch Your Email for the 2018 STEM Success for Women Telesummit

➢ **Save the Date:** April 17-20, 2017

➢ **Register for FREE pass for entire event**

➢ **Featuring interviews with 12 practitioners who have moved the needle on female and minority enrollment in STEM**

➢ **Over 1,100 educators took part in IWITTS's highly-rated inaugural 2015 Telesummit**

iwitts.org

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