Doubling Female Enrollment in Engineering Technologies Course After One Semester

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Presenters: Tony Bean, Director, Program Chair of Engineering Technologies, Rowan-Cabarrus Community College and Tammara Walker, Career Coach Manager and Career and Academic Advisor, Rowan-Cabarrus Community College

Interview Transcript:

Donna: Hello, and welcome to the 6th session of the *STEM Success for Women Telesummit*. My name is Donna Milgram, Executive Director of the Institute for Women in Trades, Technology, and Science, and I'm so glad you could join me, 15 amazing speakers, and over 1,000 educators for this online conference funded by the National Science Foundation.

Tony Bean

Our guests today are Tony Bean, Program Chair of Engineering Technologies at Rowan-Cabarrus Community College in North Carolina, and Tammara Walker, who is the Career Coach Manager and Career and Academic Advisor. **They were both part of a WomenTech Leadership Team as part of a WomenTech Educators Training, and they saw female enrollment increase 150% from 4 female students in engineering technologies to 10 after only one regular semester.** They were also able to help female students gain internships and employment in their very rural community. Welcome Tony and Tammara, and thank you both for joining me for *the STEM Success for Women Telesummit.*

Tammara Walker

Tammara Walker (Tammara): Thank you for having us.

Tony Bean (Tony): Thank you Donna.

Donna: I want to start out by asking you to talk a little bit about your community. **I know your college is located in a very rural area. Can you just talk about in a little bit?**

Tony: Yes. We actually serve two counties. Rowan and Cabarrus County, both of which are located north of Charlotte, North Carolina, up I-85 towards Greensboro. The majority of both counties is rural areas, a lot of farmland, rolling hills, kind of in the Central Piedmont area of North Carolina. We do have a lot of small businesses, and I mean small businesses that usually employ between 50 and 100 people as far as engineer and technology jobs are concerned, and then there are a few larger businesses as well, but we don't really have any large manufacturing facilities that employs thousands of people in the area.

Donna: Sure. I know an issue that can come up for women who are in technology and trades areas in a very rural area is they often have to move away in order to get employed. They don't want to move away from their families. Is that an issue in your community?

Tony: No, not really. Like I said, we've got a lot of small businesses or smaller companies that employ people around here. We've got a couple large companies in each county. We have the Food Lion Grocery store chain and also Freight Liner Trucks in Rowan County, S&D Coffee in Corning, and Amazon

just opened a new distribution center in Cabarrus County. The businesses are growing in the area, and then, like I said, some people live in this area and commute to either Charlotte or Greensboro because we're kind of just about in the middle of both of them.

Donna: Okay. That's wonderful that you're able to get employment right in your community, and you don't have to travel if you don't choose to do that. Wonderful.

Tammara, I understand you have the biggest role, in terms of implementing your team's recruitment plan. **Can you talk about the recruitment strategies you used to go from 4 female students in engineering technology to 10 after only a semester?**

Tammara: Yeah, actually we had a company that had a massive layoff. It was Freight Liners—they manufacture the 53-foot trucks, the trucks that haul the 53-foot trailers. And a lot of the female students that we met, we really just showed them the Women in Technology Outreach Kit. It really just grabbed their attention, and they saw a career pathway that we planned out for them, and it gave them a sense of security. That's what a lot of them were looking for. They didn't want to have to go through the layoff situation again. They felt security in those particular fields and positions. We just talked with them, Tony and I met with them one-on-one. We told them about the various careers they could have in this particular field, and it was a go.

Donna: Great. You had the opportunity to go on site at the Freight Liner Company before the actual layoffs, and did you talk to them initially in a group setting, and then one-on-one? How did that work exactly?

Tammara: Yes, we talked in a group setting. There is what we call an emergency team. Kind of like a crisis team where many of us from the college go out to these particular plants and talk to them about their opportunities that are here at the college. It was in a group setting. Then, it became one-on-one. The individuals that I spoke with were young ladies or ladies who sought me out, or at the same time I provided that information to let them know this is a possibility for them. The thing was they didn't realize women could go into these particular fields because it's been advertised, for a lack of better words, as a male-dominated field. Every time they saw any type of advertisement or brochures, there were men on the front of that. They were not familiar that women were increasingly seeking out these particular fields.

Donna: The Women in Technology Outreach Kit, for our listeners, is a downloadable that you can customize to your program with your own female role models. There's examples and instructions and templates. They were able to see women that looked like themselves in engineering technology. It sounds like that was a great source for you. **I know you had some other sources as well. Where else did you identify women to be in engineering technology?**

Tammara: We looked for individuals in nursing programs, military spouses, and we used other strategies to reach out to them. We have another company that's having a layoff in our area in Cabarrus County, and we plan on doing the same techniques and strategies because it worked.

Donna: How did you decide upon nursing students and military spouses? What were the mechanics of reaching out to them?

Tammara: Right. Well, the nursing program in a lot of community colleges or even four years schools are highly competitive. Again, we have to think about women and sometimes our motivation for obtaining different careers and fields, and it's because they want that security. A lot of the nursing students that we were speaking to found out that this wasn't their only avenue, nursing wasn't their only avenue to pursue different career options. We went to an ACA class, which is our success and studies fields, also our college transfer class, and we generally just spoke about, "Here are some of the options that you can pursue at this community college." A lot of them, just being out in those classrooms, entice them enough to come back and talk to us, Tony and I. And we actually had a student who left the nursing program to enroll in a mechanical engineering program.

Donna: Now, can I get a sense of the age of the women that were in an engineering technology program?

Tammara: They range from young 20s to late 40s.

Donna: They were not directly coming from high school.

Tammara: No, no. We haven't even began to reach out to high schoolers. Of course, we have our CTE programs and our Career and College Programs, but we haven't even begun to actually make contact with them yet.

Tammara: These are actually students that already had work experience. They have been in the workforce, and they wanted to come back and try another career.

Donna: You know, I think that there's sometimes the impression that the only place to recruit from is from high schools, but you've given some really good examples of other places to recruit from in the community. **I'm interested to know, one of the things that I've found is that when you have work-based learning opportunities such as internships, that this can really level the playing field, do female students in your program, and male students, have this kind of opportunity?**

Tony: Yes, we have a work-based learning program here at the college, and I think for engineering technology, I average about six or seven students per semester that participate in work-based learning. I had two female students, one was about two years ago, had an internship with Duke Energy, and after the internship was offered a full-time position there. I also had a female student that graduated last year, she did two semesters of internship with a company called TurnKey Technologies that's located here in Rowan County, and she was offered a job in the engineering department with that company. Most of our interns usually end up getting a full-time job offer at the end of the semester.

Donna: Wow, that's fantastic. **Is it very difficult in your community to set up these relationships with employers for work-based learning activities and internships?**

Tony: No, I've noticed actually in the past, probably two to three years, I've got more employers wanting interns than I've got available students. It's really harder to find students to fill all the positions.

Donna: Wow, are these paid internships?

Tony: Most of them are, yes.

Donna: What kind of salary range can you make in engineering technology when you come out with your Associates?

Tony: I would say around the average salary is probably starting about $18-22 an hour, but I have had some students starts as high as between $60-70,000 a year for a salary.

Donna: How does that compare to average salaries in your community?

Tammara: It's a big increase. You think about some of the ... Even our hiring factories, the most that they would start off at is $12 or $13 an hour.

Donna: This is a much higher hourly rate than you'd be able to get in one of these other positions. This is with a two year degree?

Tony: Yes, this is with a two-year Associate's Degree.

Donna: Wow. Okay, and having a hard time finding students with the internships. Wow. **One question that I have for you is I know, through the years, sometimes in a very rural community, there can be some resistance to having women in these career pathways. Have you encountered any of that?**

Tony: No, not in this area. We haven't. Actually, two summers ago, we had an event called a Taste of Industry, where we brought in high school career and technical education directors and high school counselors to showcase kind of what the college did here as far as our different programs. We had a panel of people from industry that included business owners, engineers, HR managers and such to come in and talk, and they all agreed that most of the engineering areas of their companies would prefer female students or female engineers just based on their attention to detail.

Donna: There's actually employers who are actively seeking female employees in this area?

Tony: Yes. In our area. The females tend to find jobs quicker than the males do.

Donna: A question that I have, I found that for some colleges, it can really be a challenge to develop these kind of relationships with employers. Could you just talk a little bit about how you've managed to do this in your community?

Tony: I think our biggest thing, from the college, is the internship program. We've got a really good group of people that work in the work-based learning office, and they're always out advertising the fact that we have students available for internships. We've got a lot of companies around here, even big name companies, that will either allow their employees who have come back to school or will call here and look for somebody to serve as an intern for the semester period. I have to credit a lot of it to the people in the work-based learning program.

Donna: Okay, you have a dedicated work-based learning program that seeks out these kind of relationships?

Tony: Yes.

Donna: Now, when the students go and do internships, are there many females that potentially are in the workplace serving as role models, or is it primarily males who are in these positions? How does that work?

Tony: I would say there's probably more males right now just because the fact that it's been such a male-dominated field, but we're finding more and more females in the area. We've also got some female instructors here, which help encourage the female students to go out and make contacts or give them contacts of other females in the industry. We've kind of really reached out and tried to seek out the females that are in industry around here for that reason.

Donna: I think that this is important because your female students are still interested and are able to be successful even if they don't have a lot of women initially that are role models for them, but now you're creating more role models through your program. I think that your situation is probably, more often than not, pretty typical in that there aren't a lot of women that are actually available on-site in the internships in the workplace, but again, these women who are coming in as students are still able to be successful, and from what you're describing, also are able to get hired, which is great. **Now, if you were talking to a college that wanted to increase the number of female students, what would be one piece of advice that each of you would give them for getting started?**

Tammara: I would say the biggest things is establishing and maintaining relationships with the employers. That's huge.

Tony: I think I would probably say try to encourage the female students to develop relationships with females in the industry or especially with the past graduates of the program who were females.

Donna: Do you have any networks that would help them with that, or do you put them in touch with the female students?

Tony: I keep a list of all my graduates, male and female. I can put the female students in touch with the female graduates, and I also talk to my female graduates about them being interested in coming back and serving as mentors here at the school.

Donna: That's something that you do as a matter of course?

Tony: Yes. Yes.

Donna: Tammara, in addition to the work-based learning program, do you also develop relationships with employers yourself, and how does that work?

Tammara: Yes. We, with me being a career coach manager, part of the tasks are ensuring that there's career clarity. We're actually in the process of starting an apprenticeship program as well for this particular program of study, but we reach out to various employers. Tony mentioned the Taste of Industry. We also have career fairs that highlight just specific areas and have students that have identified to be in this program of study to come out and speak to those individual employers. We have career fairs. We've also networked and made partnerships with our City Council. It was really heightening the awareness and making individuals cognizant that we have this program there.

Donna, I just want to say because of this training and the techniques and strategies, the methods that we learned from actually doing this training, we were awarded a National Science Foundation grant.

Donna: Oh, that's great. I didn't realize that. That's wonderful. Tell us about what the grant is about?

Tony: We just found out about two weeks ago that we had won the grant, and we're actually going to use it for the next three years to continue to have this Taste of Industry and tour industry event to reach out into the community and attract more students and female students to the engineering and trades programs.

Donna: Oh, that is great. I am so excited. That is wonderful news. Congratulations. That is wonderful.

Tony: Thank you.

Donna: One question that I see is about the mechanical engineering as being in demand***, "What other areas of engineering are in high demand locally? Are there other areas?"***

Tony: The biggest area right now is the mechatronics engineering, which is kind of a mixture between mechanical engineering and electrons engineering. It seems that most of the employers in the area want mechanical engineers with electrical backgrounds or electrical engineers with mechanical backgrounds. The mechatronics program will kind of serve the needs of both of those.

Donna: Okay, that's another big area. Great. Another question is ***"You've mentioned the WomenTech Educators Team, can you just talk about what that is?"***

Tammara: We were a team that was comprised of seven individuals. We had individuals from different areas of the engineering program, and we had career counselors that were stations at both campuses, myself and Gail Cummings. We also had a recruiter for admissions on the team. We all had our significant or our specific tasks. One was making sure that the student that was interested had a touch point person. Gail, myself, and Tony worked really close together to make sure that we answered as many questions as possible that the student may have. If the student wanted a specific tour, we arranged that. Each one of us had a specific duty.

Donna: Okay, I just want to add in that schools attend in teams of about 6, a maximum of 10, the WomenTech Educators Training. That's the team that participated in the WomenTech Educators Online training.

Tammara: Yes ma'am.

Donna: I have another question from also a counselor, who is interested in increasing the number of women in the technical programs at her college and wonders, ***"What would you recommend for her in terms of getting started from her position as a counselor?"***

Tammara: Reach out to your area employers and find out what their needs are as far as mechanical engineering. That's the touch point. If you could go to the Commerce Meetings or City Council Meetings. It's all about networking and finding those employers and what their needs are. Secondly, if you have any contact with CTE programs within your high schools, those instructors know the individuals that are

about the graduate and ready to come and embark on this journey, but most importantly it's finding out what your employers need so that way you get a better understanding of the fit for that particular company.

Donna: One of the things that I'm hearing as a theme from both of you that I'd just like to point out that I think is really important is that you're very in touch with what the needs are from employers and industry in your community. You really have some high demand areas that industry really needs employees in, and so when you're able to make that connection, they're very happy to have students and have female students and anybody that is actually trained in this area and has this education. Making that kind of connection and focusing on those career pathways that are in high demand seems to me to be one of the unwritten things that was coming through as a theme. Is that accurate? That's what I'm hearing underneath it all.

Tony: Yes. I would say it is. One of the things each program here at the college does, and I know the engineering programs do it and the technology programs all do it every year, we have advisory committees for each program. Once or twice a year we have an advisory meeting, and the committee is made up of people in the industry that comes in and says, "Hey, this is what we foresee in the future. Maybe you need to focus on this or this," or they'll come in and say, "This is what we need students to be able to do when they graduate with your program and with your degree." It gives us an idea of which direction we need to go with the program to get students ready to go into the workforce.

Donna: Having those kind of industry advisory councils are things that are standard for community colleges and two year colleges throughout the country. I know that the degree to which that's actually implemented varies from college to college and even from career pathway to career pathway, but again, having a high demand area is a way to both help get more women in and also underrepresented minorities because it creates an opening for everybody to be able to succeed in that career pathway.

Great. Thank you again Tony and Tammara so much, and thank you to all of our online participants that are participating in the *STEM Success for Women Telesummit.*