(Innovative Idea)

The Agricultural Mechanics Power & Design Experience

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Introduction/Need for innovation

In 2014, the California legislature signed *Education Code* sections 53010 through 53016 creating the California Career Pathways Trust in the amount of $250 million in competitive grant funding to enhance Career Technical Education [CTE] pathways (2015). The South Coast Region Agricultural Education Consortium [SCRAEC] was funded by this initiative to enhance the Agricultural Mechanics pathway at 19 high schools within the south coast of California.

One special project of the Consortium was to aid in supplying a pool of highly skilled agricultural mechanics teachers. The United States Department of Education (2016) lists Agriculture in California as an area of teacher shortage since 2008. Industrial Technology joined this same list in 2010. California estimates one third of the teaching force will retire in the next decade, creating a need for over 100,000 teachers (California Teachers Association [CTA], 2016). Additionally, the number of teachers hired in California with substandard credentials has nearly doubled in the last 2 years "to more than 7,700, comprising a third of all the new credentials issued in 2014-15" (Darling-Hammond, Furger, Shields & Sutcher, 2016, p. i).

Sherratt called for "more targeted and impactful interventions" (2016, p. 1) to address the teacher shortages where they exist. The creation of pipelines which encourage "Grow-Your-Own" teacher preparation programs support the notion young people would be more likely to teach in their hometown (Darling-Hammond et al., 2016, p. iii). Hence, The Agricultural Mechanics Power & Design [AMP'D] Experience was created to directly address the agricultural mechanics teacher shortage in California; specifically in the south coast.

How it works

Students were selected through an application process. They must have been entering their junior, senior or first post-secondary year and completed two years of instruction in agricultural mechanics with a letter grade of "C" or better. The application included a portion for the agriculture teacher to note characteristics the student possessed which would make them a good teacher. Twelve applications were submitted; all meeting the requirements to attend. Once accepted, students completed a registration packet which included liability forms, personal information, and parental consent letters. Payment for the camp was also submitted.

The SCRAEC program director coordinated with agriculture teachers to plan sessions. Rotations were developed for content. Project plans and supply lists were submitted to the program director. Cal Poly State University conference and housing coordinated lodging and meals as well as facilities for sessions and recreation. The AMP'D Experience participants were divided into teams and designated team leaders (pre-service agriculture teachers). Teams received points throughout the camp. Points were based on effort during skills session, as well as quality of work produced, and were assigned by the agricultural mechanics teacher running the particular session. Points could also be earned during the recreational activities. At the end of each session, points were calculated and the current winning team's pre-designated song was played. At the conclusion of the camp, the winning team, and their team leader, received a prize.

Results to date

Nine of the 12 selected students chose to attend the inaugural camp. They were led in teams by four pre-service teachers from Cal Poly State University. There were three guest speakers focusing on college and career planning for teaching, making good choices, and the power of mentoring. Eight high school and community college agriculture mechanics teachers from across California planned, designed, and lead skills workshops during the camp.

The students completed projects in plumbing, electrical, carpentry, cold metal, welding and tool sharpening. The culminating construction project resulted in the creation of four garden sheds which were raffled off by a local farm and garden company to start a 4-H and FFA scholarship fund. Each camp participant and team leader received a tote filled with tools necessary to complete projects as well as plans for the projects, a conference t-shirt, and personal protective equipment [PPE]. The winning team members and the team leader received Viking FFA auto-darkening welding helmets.

Before the camp started, students were given a pre-assessment asking them to rate their self-efficacy in the skills being addressed in the camp. They were also asked to indicate how likely they were to teach agriculture or to teach agricultural mechanics. At the conclusion of the camp, attendees were asked to re-rate themselves in both their skills and intention to teach agriculture or agricultural mechanics. They also completed a conference evaluation form.

In October of 2016, one camp attendee emailed the director "I am very pleased to tell you that I have changed my major at Fresno State to ag education with a teacher prep in mechanized ag. I will be an ag mechanics teacher! Thank you so much for the wonderful experience and for giving me a little push to pursue a dream I didn't realize I had" (Liz Hernandez, personal communication, October 12, 2016).

Future plans

Conference evaluations indicated housing and meal quality could be improved. Welding was the most popular skills session with cold metal being the least popular. At the conclusion of the first event, it is evident 16 is the maximum number of camp attendees which the shop facilities can hold safely for the activities being facilitated. Current grant funding allows the camp to only be held for students within the SCRAEC. It is the hopes of the program director to obtain additional funding to open the conference in a statewide capacity for 2017.

Costs

Resources to keep in mind when planning this type of event include: a) conference host facility fees, b) meals, c) presenter stipends, d) chaperone stipends, e) tools for projects, f) supplies and building materials, g) housing, and h) insurance. In addition, costs are relative to the number of persons in attendance. For this event, including nine students, four chaperones, three guest speakers, eight presenters and one camp coordinator, the total cost for the event was $33,301.53 or approximately $1,332 per person. A $6,600 donation did offset costs by covering meals and other unallowable grant expenditures. Additionally, each student paid a $100 registration fee. The fee, combined with donations, reduced the cost to $1,068 per person.

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