

**Fine-Tuning Success: Student Insights from the SFA Tractor Tech & ATMS Clinic**

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### **Introduction/Need for Research**

Career Development Events (CDEs) serve as a cornerstone of School-Based Agricultural Education (SBAE), offering students meaningful opportunities to build technical skills, strengthen problem-solving abilities, and apply industry-relevant knowledge in competitive settings (Bowling & Ball, 2020; Goodwin & McKim, 2020). Events like Agricultural Technology and Mechanical Systems (ATMS) and Tractor Technician demand a combination of mechanical reasoning, troubleshooting, and applied engineering concepts, making structured workshops a vital tool in preparing students for success. Although prior studies have examined how CDE clinics enhance engagement and performance (Latham et al., 2014; Sapp & Thoron, 2014), and both state and national organizations support the use of CDEs for skill development (Texas FFA, 2025; National FFA, 2025), limited research has focused on how students themselves perceive these workshops. Understanding participant reactions is essential for improving facilitation, refining instructional methods, and ensuring that content aligns with student needs and expectations (McKee et al., 2016; Sowcik et al., 2018). This study evaluated student perceptions of a regional CDE workshop by (1) determining its perceived effectiveness and (2) identifying themes that contributed to successful sessions.

### **Conceptual or Theoretical Framework**

To assess the perceived effectiveness of the workshop, this study applied Kirkpatrick's Model of Training Evaluation (Kirkpatrick & Kirkpatrick, 2016). The model outlines four levels: Reaction, Learning, Behavior, and Results. This study focused specifically on the Reaction level, which examines participant perceptions, satisfaction, and engagement. This level centers on how individuals respond to a training experience and is often used to gather immediate feedback and overall impressions. By analyzing both qualitative and quantitative responses, this study aimed to identify key factors that contributed to workshop effectiveness and highlight areas for improvement. Although Kirkpatrick's model can also be used to evaluate learning outcomes and behavioral changes, this study remained focused on perceived value rather than demonstrated skill mastery.

### **Methodology**

Participants for this study consisted of 76 SBAE students who attended and submitted evaluations for the SFA Tractor Tech & ATMS Clinic. Of these, 52.63% (n = 40) participated in the Tractor Technician workshop, while 47.37% (n = 36) attended the ATMS workshop. Each participant completed an evaluation that included (1) demographic questions, (2) selection and open-ended questions identifying their favorite and least favorite sessions with reasoning, and (3) Likert-type questions focused on perceptions of preparedness and overall session effectiveness. Open-ended responses were analyzed using thematic coding through triangulation to identify common reasons for successful or less effective sessions. The Likert-type items were used to assess participants' perceived value of the workshop and its components.

## Results/Findings

Most participants were first-year competitors (61.84%,  $n = 47$ ), with a smaller number (9.21%,  $n = 7$ ) attending the workshop without competing in the associated CDE. When asked about their preparedness following the workshop, 77.03% ( $n = 57$ ) reported feeling more ready to compete, while only 6.75% ( $n = 5$ ) indicated they did not. In terms of prior experience, 52.05% ( $n = 38$ ) felt they already had a strong understanding of the material, while 30.14% ( $n = 22$ ) disagreed. Notably, students with less experience reported a larger increase in confidence ( $M = 4.46$ ,  $SD = 1.19$ ) than their more experienced peers ( $M = 3.59$ ,  $SD = 0.78$ ), suggesting the workshop was particularly impactful for novice competitors. Participants were also asked to identify the most and least liked sessions. Four common themes emerged: content, enjoyment, instructor effectiveness, and interaction. Among the most liked sessions, *Content* (38.46%,  $n = 25$ ) and *Enjoyment* (35.38%,  $n = 23$ ) were the most frequently cited reasons. These same themes also appeared in the least liked sessions, with *Content* (49.21%,  $n = 31$ ) and *Enjoyment* (34.92%,  $n = 22$ ) again leading the responses. In the Tractor Technician session, 59.46% ( $n = 22$ ) of those who identified a least favorite component cited the *Test*. Although divisive, the test was still seen as valuable by 71.62% ( $n = 53$ ), who felt it helped them prepare for CDE.

## Conclusions

This study reinforces the value of structured workshops in preparing students for CDE competitions, especially those with limited prior experience. While not specifically designed for beginners, the workshop led to noticeable gains in confidence for less experienced participants, with more seasoned students also reporting positive outcomes. Student perceptions, as captured through both open-ended feedback and scaled responses, aligned with key elements of Kirkpatrick's Reaction level by highlighting satisfaction, engagement, and perceived value. Content, enjoyment, instructor effectiveness, and interaction emerged as central to session success. Sessions that were engaging and well-paced were better received, while those viewed as overly difficult or disconnected drew more criticism. The test component in the Tractor Technician session produced mixed reactions, though most students still found it helpful. These findings suggest that future workshops should balance technical depth with accessible, student-centered delivery to improve participant satisfaction and effectiveness, aligning with best practices for evaluating and enhancing training experiences.

## Implications/Recommendations/Impact

This study reinforces the value of structured workshops in building student confidence for CDEs, particularly for those with limited experience. Participants found value across experience levels, but gains were greatest among beginners. To improve future workshops, facilitators should emphasize hands-on activities, clear instruction, and student interaction to maintain engagement. Mixed feedback on the test portion suggests the "exam" portion should be purposeful and supportive rather than overwhelming. As this study reflects a single event, broader application is limited. Continued research should explore how workshop design influences student outcomes. In the end, effective preparation comes down to fine-tuning both skills and student support.

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