An Observational Analysis of Coaching Behaviors for Career Development Event Teams: A Mixed Methods Study

Anna L. Ball[1], Amanda M. Bowling[2], and Justin D. Sharpless[3]

Abstract

School Based Agricultural Education (SBAE) teachers can use coaching behaviors, along with their agricultural content knowledge to help their Career Development Event (CDE) teams succeed. This mixed methods, collective case study observed three SBAE teachers preparing multiple CDEs throughout the CDE season. The teachers observed had a previous track record of success at the state level with multiple CDE teams. The teachers were observed twice on location during CDE practices and their behaviors were documented using an observational instrument. Following the observations, interviews were conducted with all teachers using the quantitative data to guide the interview questions. Both sets of data were analyzed together and it was concluded that practice mechanics, content knowledge, and coach and team were key components to preparing CDE teams. Separately, the qualitative interviews found the use of goal setting, as major component of CDE team preparation. From the findings it is recommended that CDE coaches use strategies that align with practice mechanics, content knowledge, coach and team, and goal setting when preparing CDE teams.

Keywords: Career Development Events, CDE coaching behaviors, CDE teaching strategies, CDE team preparation

Introduction

Due to the diverse nature of the students enrolled in agricultural education and the wide range of content taught, school-based agricultural education (SBAE) programs look for multiple avenues to meet student needs and spark student interest into the curriculum. Career Development Events (CDE) serve as an avenue for students to apply what is learned in the classroom through competitive events, to gain more knowledge in specific career areas of agriculture (Phipps, Osborne, Dyer, & Ball, 2008). Currently, the National FFA Organization offers 24 individual and team CDEs, with three-fifths of the overall FFA membership participating in CDEs at some level (National FFA Organization, 2015; Talbert & Balschweid, 2004). CDE participation is prevalent in SBAE programs across the nation and previous studies indicate students benefit from participation in a number of ways, including developing career related interests (Marx, Simonsen & Kitchel, 2014) and acquiring selected leadership and life skills (Russell, Robinson, & Kelsey, 2009).

The ability to facilitate and prepare CDE teams has been noted as a hallmark of teaching in SBAE as Roberts and Dyer (2004) stated that the effective agriculture teacher, "…has sound knowledge of FFA, actively advises the FFA chapter, and effectively prepares students for Career Development Events" (p. 89). The importance for SBAE teachers to effectively prepare and coach CDE teams has been further punctuated in the literature indicating that CDE preparation and

---
[1] Anna Ball is a Professor of Agricultural Education in the Agricultural Education and Leadership Department at the University of Missouri, 127 Gentry Hall, Columbia, MO 65211, ballan@missouri.edu

[2] Amanda Bowling is a Ph.D. Candidate in the Agricultural Education and Leadership Department at the University of Missouri, 124 Gentry Hall, Columbia, MO 65211, AmandaBowling@mizzou.edu

[3] Justin D. Sharpless is an Instructor of Agricultural Studies in the Department of Agricultural Studies at Warner University, 13895 Highway 27, Lake Wales, FL 33859, justin.sharpless@warner.edu

coaching is one of the top five stressors for female agricultural teachers in the southeast region of the United States (King, Rucker, & Duncan, 2013). Experienced teachers spend more time on CDE preparation than first year teachers or student teachers and providing time management workshops or professional development has been suggested to decrease teacher stress and maximize teacher preparedness (Torres, Ulmer, & Aschenbrener, 2008). Finally, teachers indicate a high level of interest in participating in professional development workshops or summer courses related to CDEs and CDE team preparation (Harris, 2008). Through prior CDE research in SBAE it is known that, (a) CDEs benefit students (Marx et al., 2014), (b) an integral part of being a highly effective SBAE teacher includes preparing students for and participating in CDEs (Roberts & Dyer, 2004), (c) teachers are concerned about (King et al., 2013), can benefit from (Torres et al., 2008), and teachers would like more professional development on CDE preparation (Harris, 2008). Given this research, it stands to reason the literature on effective coaching could inform and ultimately benefit CDE preparation in SBAE.

Within athletics an effective coach has been defined as, "the consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection, and character in specific coaching contexts" (Cote & Gilbert, 2009, p. 309). The literature on effective coaching strategies in athletics denotes a heavy emphasis on intrinsic motivation, relationship and team building, and individual connections as well as time on task related to developing successful athletic teams. Regarding motivation, Vallerand (2004) noted that more successful teams can be developed by shifting an athlete's origin of motivation from amotivation or external motivation to autonomy or internal motivation. Further, Hollembeak & Amorose (2007) indicated that democratic coaching behaviors increased athletes' internal motivations, which in turn results in positive athletic outcomes. Finally, Iachini, Amorose, & Anderson-Butcher (2010) found coaches utilize autonomy strategies to help develop athletic internal drive through providing opportunities for the athletes to make choices, provide input, and make decisions regarding the management and organization of their sport. Regarding team and relationship building, Iachini et al. (2010) found that promoting positive interactions, creating cohesion/unity, and peer mentoring all helped create a team atmosphere and that team connectedness lead to team success. Finally, studies on highly successful coaches, indicated that individual strategies such as praise as a form of feedback, individualized attention to increase confidence, intense and on task practice relate to winning teams (Becker & Wrisberg, 2008; & Bloom, Crumpton, & Anderson, 1999).

When preparing teams of four individuals to compete, the agriculture teacher transitions his/her role into one of a coaching role, because of the competitive nature of CDEs. Tauer and Harackiewicz (2004) found creating both a competitive and cooperative learning environment to be more motivating and increase performance. Thus athletic coaches, similar to SBAE teachers, use strategies to promote learning and motivation through competitive activities and transfer knowledge to athletes (Cote & Gilbert, 2009). Highly successful coaches have been found in the literature to parallel teachers in using general instruction, tactical instruction, and technical instruction (Becker & Wrisberg, 2008; & Bloom et al., 1999). Similar to teaching, Gilbert, Nater, Siwil and Gallimore (2010) found coaches create collaborative learning environments through the use of friendship, loyalty, and cooperative building strategies. They also determined the ultimate goal of a coach is to do everything in their power to help the athlete *learn* what they set out for them to *learn*. Many coaching situations require the coach and athlete to develop and learn within a team setting, as is also the case when preparing CDE teams for competition.

Although research has been conducted on CDEs and the particulars of strategies relating to coaching behaviors for CDE teams, the research reported typically focuses on self-reported or qualitative themes (Bird, Haug, and Henry, 2013; Voigt, Talbert, & McKinley, 2013), or the studies are contextual bound to specific CDEs (Bowling & Torres, 2010; Falk, Masser, & Palmer, 2014).

Given the importance of CDEs to the model for school based agricultural education and prior research reporting a high level of teacher concern for professional development for CDE coaching, research is warranted to more closely investigate and codify the behaviors more experienced and successful agriculture teachers utilize and can be observed utilizing while teaching and coaching CDE teams. Given the parallels between successful coaching strategies in athletics and motivational strategies for classroom learning, the Model of Motivated Learning formed the conceptual framework for this study.

Conceptual Framework

CDE preparation is a continuous and lengthy process with multiple practice contests and competitive contests, and through the season teachers need to be able to motivate students before, during, and after the task. Due to the continuous process of CDE preparation the model for motivated learning (see Table 1) provided the conceptual framework for this study. The model for motivated learning is a cognitive model comprised from multiple theories, which focuses on the motivation of the learning during pretask, task, and posttask (Schunk, 2004). During the pretask phase, the focus of motivation surrounds setting goals and expectations and determining values, affects, needs, and social support. During the task phase, the focus is on instructional variables, contextual variables, and personal variables. The posttask phase is a period of self-reflection and focuses on reflecting upon the attributions, goals, affects, values, and social support related to the task. Through each task phase different motivating variables are required for students to work successful through them.

Table 1

Model of Motivated Learning (Schunk, 2004)

Pretask	During Task	Posttask
Goals	Instructional Variables	Attributions
Expectations	Teacher	Goals
Self-efficacy	Feedback	
Outcome	Materials	
	Equipment	
Values	Contextual variables	Expectations
	Peers	Affects
	Environment	
Affects	Personal variables	Values
	Knowledge construction	
Needs	Skill acquisition	Needs
	Self-regulation	
Social Support	Choice of activities	Social Support
	Effort	
	Persistence	

Within agricultural education a few studies have investigated how coaching strategies are used or influence student performance on CDE teams. First, Russell et al., (2009) determined the following themes which teachers use to motivate students in CDE competitions: tradition of the chapter, providing opportunities to compete, life skills development, opportunities for fun, recruiting members who show potential, and integrating CDEs into the curriculum. Bowling & Torres (2010) investigated coaching behaviors used to coach the Floriculture CDE based on Coach John Wooden's Pyramid of Success. Bowling & Torres (2010) found the top five coaching behaviors used by Floriculture CDE coaches were friendship, confidence, enthusiasm, team spirit, and cooperation. Falk et al. (2014) found the perceived coaching behaviors as reported by CDE coaches included the use of positive feedback, social support, training and instruction, and situational consideration. They also found a majority of the participants used positive feedback as a CDE coaching strategy. Further, they found a majority of the participants focused a large amount of their strategies on training and instruction (Falk et al., 2014). Voigt et al. (2013) concluded coaches use eight key behaviors: expectations, effective coaching, experience, goals, support, foundational knowledge, positive environment, and youth development. They discovered CDE coaches should not assume that students possess prior knowledge related to the subject being taught and should start by focusing on the foundational knowledge of the particular CDE area. Through a case study of an exemplary CDE coach and his teams, Bird et al. (2013), found the coach used multiple dimensions of learning and motivation to develop CDE teams. Within the dimensions of learning theme, they also discovered the subthemes of: role of the individual to team, learning strategies, and transfer (Bird et al., 2013). Within the motivation theme they discovered the subthemes of: internal factors, external factors, and role of the teacher (Bird et al., 2013). Coaching strategies help to motivate and feed the competitive nature of CDEs, but the term coaching does not suggest all of the teaching and learning is lost in CDEs.

Purpose

The purpose of this collective case study was to observe the coaching strategies used by SBAE teachers during CDE practices, and determine if patterns exist among these strategies. This study was guided by the following research questions and objectives.

Objectives:

1. Describe the observed teaching and coaching strategies being utilized during CDE practices.

2. Describe what patterns, if any, exist in CDE teaching or coaching by consistently successful CDE coaches.

Question:

What are the perceived teaching or coaching strategies being utilized during CDE practices?

Convergent Question:

Do the perceived teaching or coaching behaviors of the school based agriculture teachers mirror the observed strategies and patterns?

Methods

This study utilized a mixed methods design QUAN + QUAL (Tashakkori & Teddlie, 2010), by first collecting quantitative data through the use of an observational instrument, then collecting qualitative data through interviews of the participants and triangulating observations with major interview themes. The quantitative data from the observational instrument were utilized to develop the qualitative interview questions.

This study utilized a descriptive collective case observation design (Stake, 1995) employing a constant comparative data analysis process (Glaser & Strauss, 1967). Three school-based agricultural teachers were observed while coaching after school CDE practices. These three teachers served as the purposive sample for the study and were selected based on three criteria: (a) previous CDE team placement within the top three at state competition, (b) minimum three years teaching experience, and (c) proximity to research team for observational purposes. All three teachers were graduates of the same teacher preparation program. Two of the teachers were in two teacher programs in rural schools and one was one of four teachers in a large urban school. The CDE teams the teachers worked with during the observations included poultry, floriculture, nursery/landscape, and forestry. Each of the three teachers were considered examples of teachers who incorporate all aspects of quality school-based agriculture programs within their teaching and program design, were considered to be experienced and quality FFA advisors, and had served as past cooperating teachers. Thus, the researchers considered the participants in this study to provide a very typical portrait of teaching and coaching CDE teams.

The first phase of data collection involved the Career Development Event Coaching Assessment observational instrument. The Career Development Event Coaching Assessment was a classroom teaching/coaching instrument developed by a panel of researchers through a prior qualitative case study that followed a CDE team and its coach for an entire spring semester during the prime CDE training season. Researchers interviewed the teacher, members of multiple CDE teams, watched multiple CDE practices, and attended 3 major CDE competitive events in which the teams were participating to provide an in-depth portrait of the behaviors associated with preparing a CDE team. This study yielded over 20,000 transcribed lines of data from interviews, focus groups, and field notes, which were transcribed verbatim and then analyzed and coded for themes and categories via a constant-comparative analytic process. Based upon that analysis, a 60-minute observational instrument was developed to determine if the major elements of the interviews and field notes could be observed in a regular, patterned basis with a typical CDE team practice in other programs. The constructs of the observational instrument were developed from the themes and subthemes of the qualitative study. The individual items within each construct were developed from the specific behaviors and quotes from the qualitative study.

The Career Development Event Coaching Assessment included items such as: (a) missions and values: were the missions, values, and goals of the team posted or discussed, (b) motivation: did the teacher utilize intrinsic and extrinsic forms of motivation to motivate the team and practice session, (c) practice mechanics: was a flow, structure, and task-behaviors of the practice present, (d) coach and team dynamics: were there observed interactions of coach with the team, and (e) coach content knowledge: mastery level knowledge observed in response to questions and coaching applications. Researchers used the instrument to record frequency counts of the occurrences of the behaviors observed during 5-minute increments within the 60- minute session.

To establish validity of the observational instrument this study utilized a panel of three experts. The elements and observable interactions within the instrument were based on the model of motivated learning and the themes of a previously conducted study. The experts cross-checked the instrument with the conceptual framework and the qualitative findings to determine if the instrument was purporting to observe what it intended. The team of researchers established inter-rater reliability by listening to an audio recording of a CDE practice and discussing how to utilize the instrument and they also conducted simultaneous observations and cross-checked each individual instrument to gauge consistency among the observers. Finally, intra-rater reliability was established whereby each individual researcher conducted multiple observations and then cross-checked their individual observation for internal consistency.

Two researchers utilized the Career Development Event Coaching Assessment in 60-minute observational sessions across six individual observations of 3 different SBAE teachers

preparing three different CDE teams. The behaviors (for each major item on the instrument) were observed and marked in five minute increments across the 60 minute sessions and counted as the number and type of behaviors observed across the total number of coaching behaviors for each session. Data were analyzed as frequency counts and are reported as percentages of observed behaviors based upon overall time in the 60-minute sessions. Finally, a hierarchical cluster analysis was conducted to determine patterns among the coaching behaviors for the sessions. Two overall clusters emerged, which are reported in the findings section of this paper.

For the qualitative portion of the study, the researchers operated under an interpretivist epistemology and pragmatic philosophical perspective. The researchers were former school-based agricultural teachers and recognized the need to set aside biases. The three SBAE teachers were interviewed following each of the coaching observations. Each interview lasted 35 to 50 minutes, with semi-structured questions focusing on practice design, overall coaching strategies, content knowledge, and approach to developing CDE teams. All interviews were recorded and transcribed verbatim and the data was open-coded to preserve multiple realities (Crotty, 1998; Guba & Lincoln, 2005). The total data analysis process encompassed three rounds with final data transformed into categories and themes. Study findings were written as thick, rich descriptions of the emergent themes. Dependability and conformability were upheld through triangulation of data sources, comparison of emerging categories and themes, maintaining a continuous coding audit trail and confirming reports with participants as accurate representations of data. Finally, observations, behavioral patterns, and interviewed were converged to determine the ways in which formally observed patterns of preparing CDE teams were consistent or inconsistent with the ways participants discussed their CDE preparation.

Findings

The first quantitative research objective sought to describe the teaching and coaching strategies used by SBAE teachers during CDE practices. To determine the types of teaching and coaching strategies used, percentages of time spent within each coaching strategy category across the 60-minute observational period in the observation instrument were calculated (see Table 2). Overall, all three SBAE teachers utilized strategies related to Practice Mechanics with the most frequency. Following Practice Mechanics, use of strategies varied among the three cases. SBAE Teacher 1 utilized Knowledge (19.00% of total coaching time spent), followed by Leadership/Motivation (17.70% of total time spent), and Coaching and Team (14.90% of total coaching time). SBAE Teacher 2 utilized Coach and Team interactions (28.30% of the total coaching time), followed by Knowledge (23.10% of coaching time spent), and Leadership/Motivation (7.70% of total coaching time). SBAE Teacher 3 utilized Leadership/Motivation and Knowledge at the same frequency (22.50% of coaching time spent), followed by Coach & Team (11.50% of total coaching time). All teachers also utilized strategies related to Mission & Value, but spent the lowest percentage of total coaching time on that particular category.

Table 2

Frequency & Percent of Coaching Strategies Observed using CDE Coaching Strategies Assessment.

	Mission & Values		Leadership/ Motivation		Practice Mechanics		Coach & Team		Knowledge	
	f	%	f	%	f	%	f	%	f	%
SBAE Teacher 1	0	0.00	83	17.70	254	48.40	78	14.90	100	19.00
SBAE Teacher 2	3	0.30	71	7.70	375	40.60	261	28.30	213	23.10
SBAE Teacher 3	52	6.60	177	22.50	291	36.9	91	11.50	177	22.50

The second quantitative research objective sought to describe the existing patterns, if any, within the coaching behaviors utilized during a CDE practice among the three SBAE teachers. To calculate patterns among the three cases a hierarchical cluster analysis was performed based on the percentage of use of each strategy category within each observation. Using Ward's method and determining the maximum variance within the coefficient scores, two clusters were produced (see Figure 1). The first cluster (coefficient score of .880) consisted of both observations of Practice Mechanics and one observation of Knowledge and Coach & Team. The second cluster (coefficient score of .335) consisted of both observations of Leadership/Motivation and Mission and Values. This cluster also clustered one observation of Knowledge and Coach & Team.
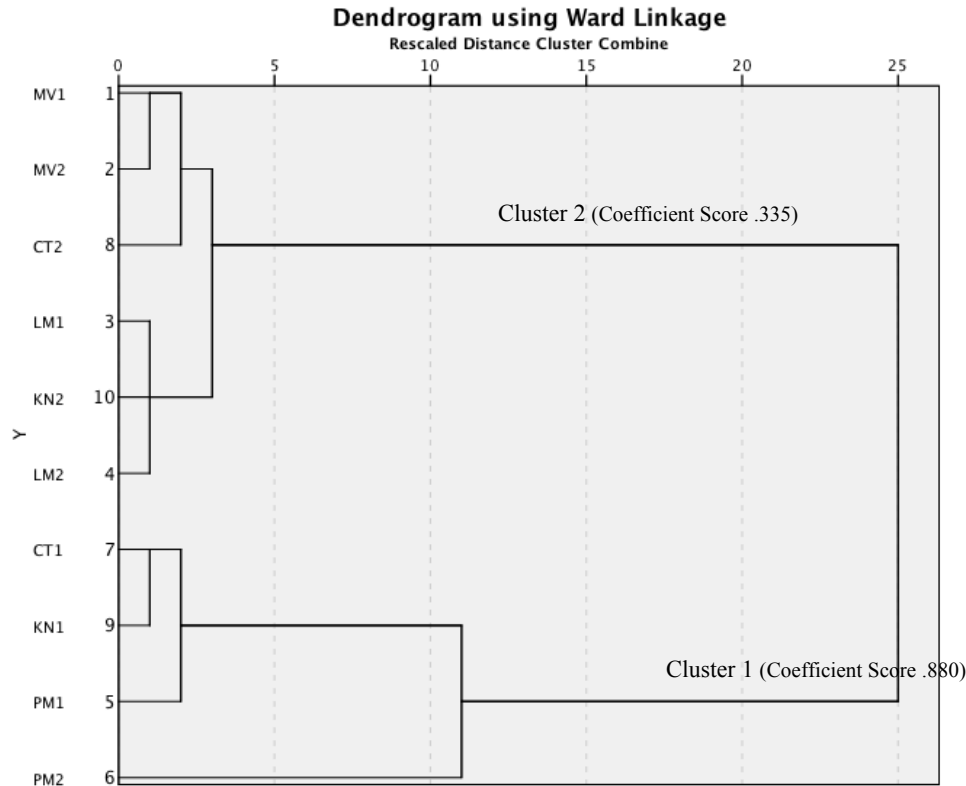
Figure 1. Hierarchical Cluster Analysis Dendogram of Observed Behaviors. Observational abbreviations: MV1 = Mission and Values First Observation, MV2 = Mission and Values Second Observation, CT1 = Coach & Team First Observation, CT2 = Coach & Team Second Observation, LM1 = Leadership/Motivation First Observation, LM2 = Leadership/Motivation Second Observation, KN1 = Knowledge First Observation, KN2 = Knowledge Second Observation, PM1 = Practice Mechanics First Observation, and PM2 = Practice Mechanics Second Observation.

The qualitative research question sought to determine what perceived teaching and coaching behaviors the school based agricultural teachers felt they utilized during CDE practices. Through qualitative interviews three themes emerged: (a) Practice: Design and Mechanics, (b) Expert Knowledge, and (c) Goal Setting.

Theme 1: Practice: Design and Mechanics

From the findings, practice design was a key component, which all three CDE coaches addressed as part of their success. Coaches set practices for 90-120 minute blocks, addressing the importance of pacing, student attention span and student's mental exhaustion during the practice sessions. The floriculture coach addressed her attentiveness to student mental exhaustion as, "I have to gauge how long they can work on one or more concepts before they hit a wall or get antsy. If I don't, I have wasted their time and mine." Practices were designed for seamless transitions between different cognitive activities to help students mentally prepare for different content portions of each CDE. Each coach had predetermined the areas to be addressed in the practice with specific segments of time set aside for each team. The floriculture and nursery/landscape practice represented a 'business' like atmosphere, with focused, specific questions linking each segment of practice together. As a result, less than five minutes of the sixty-minute practice included non-

CDE content and application discussion. When asked how she developed approach to practice, she noted:

> Time is not replaceable. You have to set the tone early so that for the entire hour and a half during practice, you expect students to be focused on learning [CDE] content and applications, not talking about their friends. This also means you as their coach have to be organized and providing quality activities that will help accelerate their understanding of the CDE areas.

Similar to this statement all three coaches interacted with students during the entire practice, minimizing student disengagement and answering questions posed by students instantaneously.

Beyond practice design, these CDE coaches set aside time and/or developed ways for students to deliberately practice specific mechanics of the contest. The poultry and floriculture coach began with a fifteen-minute session devoted to answering student questions prior to the scheduled practice activities. Next, one coach used individual scores from the previous practice contest to guide learning for the day. He determined how to address students' needs based on the low scores in the following way:

> If they are struggling with exterior egg grading, not only do I put a set of the exterior egg grading visuals out there to look at, but I try to provide them an example of every type of defect or things that are wrong with the egg, so that they are able and comfortable to say, "That's a stain and this is why it's a stain." I want them to not only tell me the answer, I want them to think in terms of higher order thinking, tell me the why, think through and analyze the big picture.

Additional activities focused on eliciting higher-order thinking skills among the students about the CDE content including application, analysis and evaluation. The floriculture coach structured each practice to incorporate multiple examples to increase cognition. The coach indicated it was important to challenge students thinking about the content in different ways so that when they encounter different types of questions in the actual contest event, they are able to think through answers more effectively. In essence, a critical part of the coaching was developing students to think more deeply about the content versus memorizing and regurgitating answers for an exam. Every learning activity incorporated visuals as well as note-taking, picture documentation, and other ways to address student learning needs. Outside of practice, students agreed to be responsible for reading content from CDE manuals, textbooks, and internet resources on their own.

Theme 2: Expert Knowledge

Coaches exhibited expert levels of knowledge related to the CDE content areas taught. Coaches demonstrated their expert level through their understanding of content concepts, providing explanations to problems, and allowing for application. Their understanding of CDE components allowed for all the students' questions to be answered on the spot without referencing additional sources for answers.

Coaches indicated the necessity to learn the content and concepts for each CDE early in their career. Coaches indicated that they became more knowledgeable in their own content through learning all information and applications in the CDE manuals, as well as taking the initiative to participate in area CDE workshops, professional development opportunities addressing CDE content, and collaborating with other advisors coaching similar teams. Coaches developed a much deeper knowledge of the interworking of each CDE by volunteering to set-up practice events in their schools, working with other advisors on regional CDEs, and speaking directly with the state-level supervisor for each of the state contests. Once each coach developed and mentored a team through the entire process, mental, and physical notes were recorded to guide team development

for the next year. One coach recognized their understanding of concepts was by trial and error, given there were no great resources for coaching a team versus learning the content. Thus, coaches were very systematic and mindful in their approaches to developing their own content knowledge in order to effectively coach a CDE team.

All coaches indicated the need to be lifelong learners. The attitude of lifelong learner and recognizing the difference between novice and expert knowledge was evident in the following statements:

> You need to set personal goals as a coach…continue to learn and ask questions. No one [coach] is perfect. You must never quit pushing yourself. You must be willing to be lifelong learner. To put myself in a novice's shoes, I have to ask myself, "If I was a student, what would be the hardest part to wrap my brain around?

Finally, coaches indicated the need to understand how to connect their knowledge of the CDE information and coaching youth to learn it. For some, that was perhaps the most difficult task in the process. As having a bigger wealth of knowledge, experience, and expertise in the CDE content area, coaches had to learn how to "step back" into the mind of a learner first experiencing that particular content in order to coach it effectively.

Theme 3: Goal Setting

All three coaches indicated to need for both the team and the individuals to set goals. All three coaches began the CDE season with student goals for level of effort and overall outcomes (placing, etc.) at all levels of competition. Setting goals then set the tone of expectations for engagement during structured and unstructured times. The most concrete example of goal setting was by the poultry team. The poultry coach required students to develop a contract among their team that included their goals. The student designed contract included the students' commitment to read or practice for thirty minutes every night prior to district level competition. Further, coaches indicated that successful teams set their goals and then self-monitor progress toward those goals. This process guided and set the tone for individual practice sessions, sustained behavior across many months of competing in chapter, area, district, and state level events, and helped shift motivation for each student from an extrinsic to a more intrinsic and sustained set of behaviors.

The convergent research objective three sought to determine if the perceived coaching behaviors of the SBAE teachers as indicated in qualitative interviews mirrored the strategies and patterns of coaching behaviors observed on the Career Development Event Coaching Assessment. By integrating the quantitative hierarchical cluster analysis and the qualitative interviews it was found that practice design (part of the Practice Mechanics section within the observational instrument), practice mechanics, knowledge, and coach and team were visible in both sets of data. Coaches indicated that they constructed carefully designed practices, emphasized time on task each time the teams worked together, needed an in-depth knowledge of the CDE content, structured ways to teach the content to their novice students, and developed interpersonal dynamics between themselves and among individual team members. Each of those behaviors were reported with some degree of frequency in terms of percentage of total time observed during the CDE practice sessions, as indicated on the observational instrument.

The hierarchical cluster analysis, revealed that observed behavior patterns clustered mostly around practice mechanics and knowledge, with mission and values missing. Where the qualitative interviews indicated the coaches used goal setting to prepare their teams. Goal setting was an integral part of the "mission and values" section of the observational instrument. Thus, the qualitative interviews revealed an area for further development and articulation on the observational instrument.

Conclusions, Implications, and Recommendations

From the findings of the observational instrument, it was concluded that practice mechanics and knowledge comprise the majority of total time spent on developing CDE teams as demonstrated by the SBAE teacher participants in this study. It was further concluded to a lesser degree, that SBAE teachers were observed using coach and team development and leadership/motivation strategies to a lesser degree, with articulating a mission and values observed infrequently during team practice sessions. The conclusions are consistent with previous literature on coaching CDE teams indicating that teachers utilize training and instruction (Falk et al., 2014). These conclusions are also consistent with previous literature on successful athletic coaches indicating that the process of coaching is clearly parallel to effective teaching and instruction (Becker & Wrisberg, 2008; Bloom et al., 1999). The conclusions shape some very interesting implications for teaching and coaching CDE teams. This study, while small in sample size and thus should be approached with caution, is an important first step in the literature to supporting the assertion that in regard to CDE teams, coaching is coaching (as observed by coaching behaviors such as team, leadership, and motivation), yet coaching CDE teams is also teaching (as observed by the knowledge and practice mechanics sections of the instrument). Anecdotally and philosophically, agricultural educators have argued about CDEs, CDE competitions, and "training, coaching, teaching, or mentoring" CDE teams. The conclusions from this study imply that successful SBAE teachers can be observed conducting all of the behaviors listed above as a part of developing their teams. It is recommended that teacher professional development clearly articulate the dynamics of developing teams as both a teaching and a coaching endeavor. Further, it is recommended that teacher professional development communicate knowledge development and practice mechanics as a mechanism to help teachers mentor CDE teams more effectively. Finally, future studies should be conducted using the Career Development Event Assessment instrument to indicate if other teachers can be observed using similar behaviors during CDE practices.

From the hierarchical cluster analysis, it was concluded that practice mechanics, knowledge, and coach and team were major patterns among the coaching behaviors observed in this study. This conclusion is consistent with many studies on coaching athletics teams indicating that having structured, well-articulated practices, developing knowledge of the sport (the strategies, the plays, and executing the skills), and developing team dynamics are integral to successful teams (Cote & Gilbert, 2009). This conclusion is further consistent with previous CDE studies in agricultural education (Bird et al., 2013) indicating that developing a CDE team includes a multitude of motivation and learning strategies that occur before, during, and after the specific practice sessions, which closely matches the Model of Motivated Learning (Schunk, 2004). It is implied that clearly articulating a structure to how a practice session should be conducted and developing knowledge of content is important to coaching CDE teams, as indicated in observed practice behaviors. Teacher professional development should focus on helping new teachers learn effective practice mechanics and helping them further learn CDE content of interest as well as how to transmit said content to novice students. Future research needs to be conducted to further codify the particulars of CDE team practices to more deeply articulate what practices should look like, ways in which content knowledge is developed, and ultimately the correlation between practice mechanics, knowledge development and team outcomes. For example, do teams coached in specific ways perform differently?

From the qualitative phase of this mixed-methods study it was concluded that practice structure, expert knowledge and goal setting were perceived as integral pieces to developing CDE teams according to the three teachers in this study. While the qualitative themes largely matched the observational patterns in the quantitative portion of the study, as mentioned in the findings section, the qualitative them of "goal-setting" was a clear theme in the qualitative phase of the study, yet the observational pattern of "mission and values" in the quantitative study did not cluster

in the hierarchical cluster analysis. The "mission and values" construct in the observational instrument was closely linked to the ways in which teachers talked about setting goals in the "goal setting" theme of the qualitative phase. This mismatch in the qualitative and quantitative phases in the study around the area of goal setting implies that the observational instrument may need further development. Goal-setting, as indicated by the teachers in the study clearly happened, and was an integral piece to successfully developing the CDE teams. Goal-setting is also consistently observed in both the literature on effective athletic coaching (Iachini et al., 2010) as well as the literature in agricultural education (Bird et al., 2013; Voigt et al., 2013) in developing CDE teams. The findings further imply that goal-setting, as a construct could be more difficult to measure from an observational standpoint. As a form of motivation, goal-setting tends to be more internally driven, and thus less externally observable. It is recommended that further research be conducted to test the observational instrument and further develop the mission and values section of the instrument to more accurately reflect the goal-setting process. Furthermore, it is recommended that further research be conducted at the student level regarding the relationship between student motivation and team success. Studies should investigate the kind of motivation that occurs among students on CDE teams, how motivation is developed, and whether specific kinds of motivation or specifically motivated students lead to more or less successful CDE teams. Teacher professional development should be conducted on the importance of goal-setting and motivation to team development as it relates to preparing CDE teams, and help school based agriculture teachers work with students to set individual and team goals.

This study was a beginning glimpse toward further codifying how teachers develop and coach CDE teams, the patterns of observable behavior that occur during team coaching sessions, and whether what teachers say they do to develop teams matched observed behaviors. The study was conducted with three teachers during eight total observations and multiple interview sessions and the findings should be interpreted as such. Yet, the information gleaned from this study can serve as a first step in further articulating teacher practice as it relates to teaching and coaching CDE teams.

References

Becker, A. J., & Wrisberg, C. A. (2008). Effective coaching in action: Observations of legendary collegiate basketball coach Pat Summitt. *The Sports Psychologist, 22*, 197-211.

Bird, W. A., Haug, K., & Henry [Ball], A.L. (2013). Is competition conducive to learning? An exploration of student experiences during competitive career technical student organization events. *Proceedings of the American Educational Research Association Conference.* San Francisco, CA.

Bloom, G. A., Crumpton, R., & Anderson, J. E. (1999). A systematic observation study of the teaching behaviors of an expert basketball coach. *The Sports Psychologist, 13*, 157-170.

Bowling, A. M., & Torres, R. M. (2010). Frequency of coaching behaviors used by agricultural teachers in relation to the state floriculture career development event team rank. *Proceedings of the North Central Region AAAE Research Conference,* Manhattan, KS.

Cote, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching, 4*(3), 307-322.

Crotty, M. (1998). *The Foundations of social research: Meaning and perspective in the research process.* New York: Sage.

Falk, J. M., Masser, D. T., & Palmer, H. R. (2014). Describing the relationship between coaching behaviors and student performance at the national FFA parliamentary procedure career

development event. *Proceedings of the National AAAE Research Conference,* Snow Bird, UT.

Gilbert, W., Nater, S., Siwik, M., & Gallimore, R. (2010). The pyramid of teaching success in sport: Lessons from applied science and effective coaches. *Journal of Sport Psychology in Action, 1*, 86-94. DOI: 10.1080/21520704.2010.528172.

Glaser, B. G., & Strauss, A. (1967). *Discovery of grounded theory: Strategies for qualitative research.* Chicago, IL: Aldine, Transaction.

Guba, E., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (eds.), *The sage handbook of qualitative research* (p. 191-215). Thousand Oaks, CA: Sage Publications.

Harris, C. R. (2008). Career development event participation and professional development needs of Kansas agricultural education teachers. *Journal of Agricultural Education, 49*(2), 130-138. DOI: 10.5032/jae.2008.02130

Hollembeak, J., & Amorose J. (2007). Perceived coaching behaviors and college athletes' intrinsic motivation: A test of self-determination theory. *Journal of Applied Sport Psychology, 17*(1), 20-36. DOI: 10.1080/10413200590907540

Iachini, A., Amorose, A., & Anderson-Butcher, D. (2010). Exploring high school coaches' implicit theories of motivation from a self-determination theory perspective. *International Journal of Sports Science & Coaching, 5*(2), 291-308.

King, D. L., Rucker, K. J., & Duncan, D. W. (2013). Classroom instruction and FFA/SAE responsibilities creating the most stress for female teachers in the southeast. *Journal of Agricultural Education, 54*(4), 195-205. DOI: 10.5032/jae.2013.04195

Marx, A. A., Simonsen, J. C., & Kitchel, T. (2014). Secondary agricultural education program and human influences on career decision self-efficacy. *Journal of Agricultural Education, 55*(2), 214-229. DOI: 10.5032/jae.2014.02214

National FFA Organization. (2015). Retrieved from www.ffa.org.

Phipps, L. J., Osborne, E. W., Dyer, J. E., & Ball A. (2008). *Handbook on agricultural education in public schools* (6th ed.). Clifton, New York: Delmar.

Roberts, T. G., & Dyer, J. E. (2004). Characteristics of effective agriculture teachers. *Journal of Agricultural Education*, *45*(4), 82-95.

Russell, C. R., Robinson, J.S., & Kelsey, K.D. (2009). Motivating agriculture students to participate in career development events. *Career and Technical Education Research, 34*(2), 103-118.

Schunk, D. H. (2004). *Learning theories: An education perspective.* Upper Saddle River, NJ: Pearson Education.

Stake, R. E. (1995). *The art of the case study.* Thousand Oaks, CA: Sage.

Talbert, B. A., & Balschweid, M. A. (2004). *Comparison of agricultural education students to the "typical high school student" as quantified in the state of our nation's youth:* By the Horatio Alger Association: Follow up study. Final report for National FFA Organization. Retrieved from www.ffa.org.

Tashakkori, A., & Teddlie, C. (Eds.). (2010). *Sage handbook of mixed methods in social & behavioral research*. Sage.

Tauer, J. M., & Harackiewicz, J. M. (2004). The effects of cooperation and competition on instrinsic motivation and performance. *Journal of Personality and Social Psychology, 86*(6), 849-861. Doi: 10.1037/0022-3514.86.6.849

Torres, R. M., Ulmer, J. D., & Aschenbrener, M. S. (2008). Workload distribution among agriculture teachers. *Journal of Agricultural Education, 49*(2), 75-87. DOI: 10.5032/jae.2008.02075

Vallerand, R. J. (2004). Intrinsic and extrinsic motivation in sport. *Encyclopedia of Applied Psychology, 2*, 427-435.

Voigt, M. A., Talbert, B. A., McKinley, S., & Brady, C. M. (2013). Promising coaching practices of expert dairy, horse, and livestock career development event coaches: A qualitative study. *North American College and Teachers of Agriculture Journal, 57*(2), 45-55.