



Texas panhandle beef production tour, a high-impact compressed course in animal science

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ABSTRACT

Many animal science students have little exposure to working livestock production systems prior to college. As such, they can lack insight into day-to-day challenges and rationale behind decision making in these systems, opening the door for the adoption of misconceptions frequently promoted in the popular press. In addition, students identify a lack of first-hand knowledge and experience in the industry as a challenge to their educational success. Field trips stimulate interest and motivation, provide context for learning, and influence long-term career goals, but are underutilized in higher education. The potential impact of such experiences prompted the creation of the Texas Panhandle Beef Production Tour, a 2-credit hour compressed course. Students on this tour visited beef production sites in the Texas Panhandle ranging from cow-calf operations, to feedlots and packing plants. To cement learning through reflection, students responded to a series of questions before, during, and after visiting these sites to probe preconceptions, observations, and outcomes of the experience. We performed a retroactive qualitative evaluation of these reflections ($n = 22$) to determine cogent themes. Emergent themes included surprise at the intensive systems of data collection and management and the level of technology used at each site. Cattle were calmer and more comfortable than expected at the feedlots and packing plants. Students expressed new appreciation and understanding of course material and a desire to share their insights with others after completing the tour. Finally, participants gained a broader view of industry opportunities and returned with renewed motivation to pursue additional hands-on opportunities. Participation in this course provided valuable insight into the livestock production industry and motivated students to explore new career options and address their own preconceptions of the industry through independent inquiry. The creation of similar courses may be useful to address misconceptions, create personal connections with course material, and broaden career interests in animal science students.

Key words: compressed course, experiential learning, fieldtrip, high-impact learning

Introduction

Compressed Courses

Compressed courses, often colloquially referred to as “minimester” courses, are incorporated into the curricula of many universities to accelerate learning and provide productive options for filling the time between semesters (Мадюк, 2020). Courses like these yield similar outcomes to traditional 15-week courses as students complete compressed courses with comparable foundational knowledge, skill development, and confidence (Homeyer and Brown, 2002). A compressed course format offers unique opportunities for the incorporation of high-impact learning experiences like experiential learning activities. Students value inclusion of experiential learning opportunities like field trips in compressed courses to stimulate active learning and more complete immersion in the course material (Williamson III, 2017). In addition, field trips promote personal connections with course material and if students feel that they can apply knowledge either personally or professionally, they are more likely to retain information and report satisfaction with intensive minimester courses (Scott, 1996).

Experiential Learning

Experiential learning and field trips have long been used in the education system to provide context for learning

and stimulate student interest and motivation (Larsen et al., 2016). As early as 1916, Dewey posited that experience plays a central role in the learning process, as theory only becomes relevant through experience (Dewey, 1916). Unfortunately, experiential learning through field trips is currently underutilized in higher education (Higher Education Research Institute, 2011; Wurdinger and Allison, 2017). In primary and secondary students, participation in field trips influences long-term career goals and impacts cognitive, social, and cultural understanding (Forest and Rayne, 2009), with similar results likely in higher education. Field trips also can be used to spark personal insights including career interests, perspectives, and applicability of previous course material to career aspirations (Kuh, 1993; Slavich and Zimbardo, 2012; Malbrecht et al., 2016).

Education Challenges

Currently, a challenge to animal science education is the preponderance of misinformation about agriculture and livestock production. Modern consumers are increasingly concerned with the morality of concentrated animal feeding systems (CAFOs; Eurobarometer, 2016). Most of these consumers lack a personal connection with agriculture and have no first-hand knowledge of farming practices (Fraser, 2001; Boogaard

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et al., 2010; Alonso et al., 2020). Many rely heavily on second-hand sources like news media to formulate their opinions on farming practices, particularly those of CAFOs (Cloke, 1997; Boogaard et al., 2010). Unfortunately, the popular press often paints such operations in a negative light, creating the perception that they are controlled by corporations concerned only with profit, uninterested in animal welfare, and detrimental to the environment (Fraser, 2001). Currently, pro-agricultural groups tend to respond by categorically refuting these claims and painting an entirely positive picture of animal agriculture that leaves consumers with extremely contradictory narratives, wondering who to trust (Fraser, 2001). This conflict creates a challenge in the animal science classroom, as instructors must unravel strongly held preconceptions about animal production to teach students the scientific, economic, and environmental rationale behind decision making in the livestock industry. This endeavor is made more difficult by the fact that many college students, even those in animal sciences, have had limited to no exposure to cattle production systems and lack insight into day-to-day challenges and operational protocols from which to promote understanding of the system.

We propose that utilizing experiential learning theory to provide first-hand experience of different aspects of cattle production will increase knowledge and appreciation of the industry, solidify connections with course material, and promote students' awareness of the current gaps in understanding that exist between society and livestock producers (Alonso et al., 2020). Participation in a compressed course comprised entirely of an extended tour of beef production in the Texas Panhandle will afford students a firsthand look into the cattle production industry, providing relevance to

course material, and allowing students to reflect on their perceptions of CAFOs and potential career opportunities within the industry (Behrendt and Franklin, 2014; Kolb and Kolb, 2017).

Methods

All procedures and data collection were approved by the Texas A&M University Institutional Review Board, IRB2020-0995M.

Texas Panhandle Beef Production Tour Design

Students ($n = 22$) were enrolled in the cross-listed graduate/undergraduate "Texas Panhandle Beef Production Tour" compressed course. Students applied to participate in the course during the spring of 2018 and participated in a 2-h orientation the week prior to the tour. The field Trip departed from College Station, TX to the Texas Panhandle on 14 May 2018 in three 15-passenger vans. Each van contained between 7 and 8 students and one faculty member. Graduate students were dispersed across all three vans and students could not swap vans. Faculty members were responsible for encouraging participants to complete their reflections and promoting discussion before and after each stop. The field trip concluded on 17 May 2018, after touring all segments of beef cattle production and interacting with numerous professionals from allied industries (Table 1). Students were encouraged to take advantage of the opportunity to observe aspects of beef production not typically available to the public, and to engage with animal science professors and industry professionals during the tour to gain experiential knowledge of the industry. Funds to support the tour were

Table 1. Beef production tour itinerary¹

Date	Location	Host	Industry segment
Monday, 14 th May			
0530	Depart – College Station, TX	-	
1700	Tulia, TX	Cactus – Cattle Feeders Wrangler Feedyard	Feedlot
1900	Amarillo, TX	Merck Animal Health	Allied Industry
Tuesday, 15 th May			
0900	Friona, TX	Cargill Meat Solution	Packer
1300	Hereford, TX	Westway Feed Products	Allied Industry
1600	Hereford, TX	OT Feedyard	Feedlot
1900	Amarillo, TX	Anipro/Xtraformance Feeds	Allied Industry
Wednesday, 16 th May			
0830	Dumas, TX	Canadian River	Geological Feature
0900	Dumas, TX	Exell Ranch	Cow/Calf & Stocker
1300	Dalhart, TX	Cargill - SweetBran	Allied Industry
1500	Dalhart, TX	Five Rivers Hartley Feeders	Feedlot
1900	Amarillo, TX	Cadillac Ranch	Cultural Icon
2000	Amarillo, TX	Blue Sky Burgers	Retail
Thursday, 17 th May			
0830	Claude, TX	Palo Duro Canyon	Geological Feature
1300	Throckmorton, TX	R.A. Brown Ranch	Seedstock
2300	Arrive – College Station, TX		

¹The field-trip covered approximately 2250 km.

Table 2. Demographic information

	Frequency total	Total, % ¹
Gender		
Male	7	32
Female	15	68
Year		
PhD	4	18
MS	8	36
Senior	13	59
Junior	2	9
Major		
Animal science	21	95.5
Biomedical science	1	4.5
Origin		
Domestic	20	91
International	2	9

¹Percent totals were calculated by taking the frequency total and dividing by the total number of individuals, $n = 22$.

made available by the Jim Theeck '65 Beef Cattle Seminar Endowment and the out-of-pocket costs for students were approximately \$100.

Data Collection

To evaluate the effect of this minimester field trip on student perceptions, motivations, and career goals, the course instructor collected student reflections regarding their experiences and perspectives. Students were asked to reflect and record their observations and experiences in open-ended responses before, during, and after participating in the minimester Texas Panhandle Beef Production Tour. These data were then analyzed retroactively to identify emergent themes.

Demographic Data

Students participating in this compressed course were comprised of both graduate (32%) and undergraduate students (68%) with a majority from the animal science major (95%) and one biomedical sciences student. Approximately 68% of students were female. Students of both international (9%) and domestic (91%) origin participated in this course (Table 2). Although the majority of students were part of the animal science major, most had not had the opportunity to visit large-scale concentrated feeding operations or packing plants before participating in this minimester course.

Reflections

Prior to arriving in the Texas Panhandle, students were asked to provide open-ended responses to several prompts to gauge their views on CAFOs, their educational experience, and their perspectives of animal science (Table 3). These prompts included questions like “What does a feedlot look like?” “What challenges does a packing plant face?” “What do you hope to gain from this trip?” and “What challenges do you have to achieving your educational goals?”

During the trip, students reflected on each experience at the feedlots, dairy, packing plant, and ranch that they visited (Table 4). Students relayed observations and surprises from

each site, as well as challenges discussed by managers and employees of these sites.

At the conclusion of the trip, students reflected on several more prompts to assess perception changes including, “How have your views on animal science courses changed?” “What will you do as a result of this trip?” and “What did you get out of this trip?” (Table 5).

Data Analysis

Student responses were then analyzed using the Chi (1997) seven-step methodology for qualitative analysis. Responses to reflection prompts were coded using an open coding methodology to identify emerging themes using MAXQDA Analytics Pro (VERBI, 2020), and the frequencies of responses were evaluated. Open coding resulted in a total of 227 codes and 1027 coded segments. Responses to each prompt were tallied and reported. Total student percentages for each response were determined by dividing the frequency of response by the total number of students ($n = 22$). Item response totals differ from the total number of students as student reflection responses may have fallen under multiple categories, or they may not have provided a response to the prompt in question. Responses that fell under multiple categories were coded separately within each category. Quotes were selected from the top response categories within related prompts to qualitatively illustrate empirical findings.

Results and Discussion

Pre-departure Reflections

Through their pre-departure reflections, students identified the primary challenge to achieving educational goals as a lack of hands-on or industry experience (31.8%) within their normal degree path in animal science (Table 3). In addition, 22.7% of students cited a lack of knowledge or confidence about industry careers as a potential roadblock to their future success as animal science professionals. As one student stated,

“I was not raised on a cattle operation and feel that I am at a disadvantage at times.”

Students desired opportunities to gain hands-on or industry experience (50.0%) and viewed the Panhandle Beef Production Tour as an opportunity to address their lack of knowledge and limited firsthand experience to enhance their opportunities for success in animal science.

When asked what they hoped to gain from participating in the Panhandle Beef Production Tour, student responses reflected similar themes; 27.3% hoped to gain firsthand knowledge of the cattle industry, and an additional 27.3% intended to seek out networking, job, or internship opportunities, while 18.2% of students hoped to clarify their career goals through exposure to the industry and industry professionals. Furthermore, students expressed excitement about the opportunity to apply knowledge learned in their animal science classrooms to real-world scenarios (22.7%), learn about different sectors of the beef industry (13.6%), and network with industry professionals (9.1%).

Ranch Students imagined ranches as idyllic spaces consisting of large pastures (63.6%) with cows and calves in the fields (22.7%). Several students also mentioned an expectation that most large ranches are corporate owned and operated

Table 3. Student responses to reflection prompt before embarking on the Texas Panhandle Beef Production Tour

Prompt and response	Frequency total	Student total, % ¹
What do you hope to gain from this trip?		
Firsthand knowledge of the live-stock industry	6	27.3
Networking, job, or internship opportunities	6	27.3
Clarify career goals	4	18.2
² Item response total	16	
What is a challenge preventing you from getting everything you can out of your education?		
Lack of hands-on or industry experience	7	31.8
Lack of knowledge or confidence about careers in the industry	5	22.7
Personal responsibilities	3	13.6
Item response total	15	
What do you see as a solution to your educational challenges?		
Seek out hands-on or industry opportunities	11	50.0
Apply for graduate school, research, or internship opportunities	2	9.1
Item response total	13	
What are you most excited to do on this trip?		
Apply knowledge from classes to real-world scenarios	5	22.7
Learn about different sectors of the beef industry	3	13.6
Network with industry professionals	2	9.1
Item response total	10	
What does a packing plant look like?		
Huge factory	10	45.5
Fast-paced assembly line	6	27.2
Cramped and miserable	5	22.7
Item response total	21	
What challenges does a packing plant face?		
Product safety, biosecurity, and sanitation	10	45.5
Poor public perception	5	22.7
Animal health and welfare	4	18.2
Finding, training, and maintaining employees	4	18.2
Item response total	23	
What does a feedlot look like?		
Cramped, dusty pens of cattle	13	59.1
Item response total	15	
What challenges does a feedlot face?		
Cattle health and welfare	13	59.1
Facility limitations	11	50.0
Financial issues	8	36.4
Public perception	6	27.2
Item response total	38	
What does a large ranch look like?		
Pastures, expansive space	14	63.6

Table 3. Continued

Prompt and response	Frequency total	Student total, % ¹
Cows and calves in fields	5	22.7
Corporate owned	2	9.1
Item response total	21	
What challenges does a large ranch face?		
Animal factors	15	68.2
Financial challenges	13	59.1
Weather or environment	11	50.0
Item response total	39	

Note. Individual responses to prompts were clustered into categories by theme, counts were made.

¹Student percent totals were calculated by taking the response statement count and dividing it by total number of students ($n = 22$)

²Item response totals do not match a number of students ($n = 22$) as student responses may fall into more than one category, or they did not respond to the prompt.

(9.1%) in accordance with negative perceptions of the consumer described by Fraser (2001). Challenges to the success of ranches were identified as animal factors (68.2%) including cattle health, management, and breeding programs. Students cited financial factors (59.1%) like market volatility or land and feed prices, as well as weather (50.0%) as further challenges to ranch operations (Table 3).

Feedlots When asked about their perspectives of feedlots, 59.1% of students expected them to be a large facility of many dusty and cramped pens of cattle (Table 3). Similar to the views of the modern consumer discussed by Fraser (2001), animal science students had a rather negative view of feedlots and other CAFOs, expecting cattle to be “packed like sardines” with “an overabundance of flies and manure.”

Many students expected cattle health and welfare to be a major issue for feedlots (59.1%), while others cited financial issues (36.4%) such as market volatility or feed prices as a challenge within the feedlot production system. Public perception (27.2%) and facility limitations (50.0%) such as manure management and efficiency were also mentioned as potential challenges to feedlot operations.

Packing plants Students characterized packing plants as cramped and miserable places to work (22.7%) imagining a huge factory-like space (45.5%) functioning as a fast-paced disassembly line (27.2%; Table 3). Major challenges for packing plants were thought to be product safety concerns such as biosecurity and sanitation (45.5%). They also anticipated that poor public perception (22.7%), animal welfare (18.2%), and employee training and retention (18.2%) would present operational challenges in Panhandle packing plants.

During Tour Observations

Students recorded their observations during each site visit, including any surprises or challenges discussed by professionals at each site (Table 4). Many people outside of the livestock industry hold images of livestock production as either a bucolic landscape or unnatural factory farms (Boogaard et al., 2010). Under this dualistic view of production practices, modern innovation is categorized as “unnatural” and “bad” while a lack

Table 4. Frequencies of students' individual response statements by prompt and responses regarding observations during the Texas Panhandle Beef Production Tour

Prompt and response	Frequency Total	Student total, % ¹
Packing plant challenges		
Worker hiring, retention and training	18	81.8
Oversized carcasses	6	27.3
Plant security, safety, and sanitation	4	18.2
Protecting reputation	3	13.6
² Item response total	31	
Packing plant observations and surprises		
Organized, efficient and fast-paced	13	59.1
2000+ employees	11	50.0
Huge, complex	10	45.5
Process 5000 cattle per day	8	36.4
Manual labor	7	31.8
High tech	6	27.3
Use for all byproducts	4	18.2
Clean	3	13.6
Item response total	52	
Feedlot challenges		
Maintaining cattle health	11	50.0
Filling labor positions	7	31.8
Financial challenges	6	27.3
Purchasing uniform, healthy cattle	6	27.3
Negative public perception	5	22.7
Environment and weather	4	18.2
Item response total	39	
Feedlot observations and surprises		
Technologically advanced	11	50.0
System precision, complexity, and efficiency	9	40.9
Clean and calm facilities	9	40.9
Robust research programs on feedlots	8	36.4
Knowledgeable employees	5	22.7
Secure, well-tracked medication use	3	13.6
Healthy comfortable cattle	3	13.6
Immense amount of data collection	3	13.6
Item response total	51	
Ranch observations and surprises		
Huge amount of data collected	11	50.0
Large, family run using horses	3	13.6
Always improving	2	9.1
Item response total	16	

Note. Individual responses to prompts were clustered into categories by theme, counts were made.

¹Student percent totals were calculated by taking the response statement count and dividing it by total number of students ($n = 22$)

²Item response totals do not match number of students ($n = 22$) as student responses may fall into more than one category, or they did not respond to the prompt.

of technology relying mainly on traditional practices is viewed as “good” and “idyllic.” Neither of these disparate images accurately characterizes modern large-scale livestock production. Firsthand experience provides learners with a more

Table 5. Frequencies of students' individual response statements by prompt and responses regarding post-tour perspectives

Prompt and response	Frequency total	Student total, % ¹
What did enjoy most about this trip		
First-hand knowledge of industry	8	36.4
Opportunity to apply classroom knowledge in a real-world setting	6	27.3
Site visits	5	22.7
Networking opportunities	5	22.7
² Item response total	25	
What did you get out of this trip?		
New appreciation and respect for livestock industry	9	40.9
New perspective on how the beef industry works together	9	40.9
Broadened view of industry opportunities	8	36.4
Clarified career goals	5	22.7
Corrected some of my misconceptions	2	9.1
Item response total	33	
How have your views on animal science changed?		
New appreciation and understanding after seeing animal science in action	8	36.4
Identified area of interest for future	3	13.6
Item response total	11	
What will you do as a result of this trip?		
Take steps to achieve career goals	18	81.8
Teach others about what I learned	10	45.5
Seek out more first-hand knowledge and experiences	7	31.8
Try to understand, ask more questions instead of making assumptions	4	18.2
Item response total	39	

Note. Individual responses to prompts were clustered into categories by theme, counts were made.

¹Student percent totals were calculated by taking the response statement count and dividing by total number of students ($n = 22$)

²Item response totals do not match number of students ($n = 22$) as student responses may fall into more than one category, or they did not respond to the prompt.

nuanced perspective, facilitating reasonable expectations of producers and realistic viewpoints of the value of modern innovation in farming practices (Boogaard et al., 2010).

Surprise at the level of technology in use at each site was a common theme among students (27.3% and 50.0% at the packing plant and feedlot, respectively). In addition, students were surprised by the cleanliness and calm environment in the sites visited (13.6% and 40.9% at the packing plant and feedlots respectively). These observations are similar to those made by Boogaard et al. (2010) when conducting tours of dairy farms for laypersons in Norway and the Netherlands. Participants in those dairy tours confronted their personal biases and constructed a more balanced and complex opinion of farming and farm operations after experiencing those practices first-hand.

Packing plant observations While touring the packing plant, students observed a large and complex system (45.5%) that operated efficiently at a face-pace (59.1%; Table 4). Students mentioned their surprise to learn that the plant they visited employs over 2000 people (50.0%) and much of the work is accomplished manually (31.8%) to process over 5000 cattle each day (36.4%). Interviews with professionals at the packing plant identified major operational challenges in employee hiring, training, and retention (81.8%), of greater concern than students originally surmised. Students were surprised to learn that:

“Because it is such a physically demanding job, [packing plants] have to look further for people than cattle.”

As expected by students prior to visiting the plant, sanitation, biosecurity, and safety were identified as operational challenges (18.2%). Packing plant managers also mentioned an unexpected challenge of oversized carcasses (27.3%) caused by a change in feeder market preferences not yet reflected in available equipment or consumer markets.

Feedlot observations Student reflections of their experiences at corporate and privately owned feedlots mentioned the precision necessary to keep a complex system of technology, employees, and animals running efficiently (40.9%; Table 4). Also contrary to expectations were the robust research programs present in these feedlots (36.4%), secure and well-tracked medication use (13.6%), and the enormous amount of data collected during daily operations (13.6%). These observations led to personal revelations for some students:

“Research in industry is not something I ever considered. I always just assumed that it was just a thing that Universities did, but I was wrong. This could be yet another path which I could pursue.”

Feedlot professionals spoke with students about challenges to feedlot operations including maintaining cattle health and welfare (50.0%) as predicted by students prior to the site visits. Contrary to expectations, however, this challenge is met largely prophylactically, rather than through intensive treatment of large numbers of sick animals. Additionally, filling labor positions (31.8%), financial challenges (27.3%) like feed costs and market volatility, and negative public perception (22.7%) were mentioned as daily challenges in feedlot management.

Ranch observations Although students mentioned the idyllic, family-run setting of the large ranch they visited (13.6%), a greater impression was made by the huge amount of data collected and intensive management required (50.0%) to maintain cattle health, and genetic progression through the breeding program (Table 4). This ensures that genetics are always improving to promote meat quality, the performance of cattle, and sustainability (9.1%):

[The ranch owner] retains ownership of some of his calves through the packer so he knows their performance...to produce the best cattle to perform in all areas

of cow-calf, feedlot, and packer to benefit the entire beef industry.

Post-return reflections

At the conclusion of this trip, students reflected on their experiences, perspective changes, and intentions going forward (Table 5). Experiential learning through field trips is widely accepted as a means to challenge preconceptions and generate attitude and behavioral changes in students (Scarce, 1997; Pugsley and Clayton, 2003; Forest and Rayne, 2009; Behrendt and Franklin, 2014; Alonso et al., 2020), leading to more positive attitudes toward the subject being studied (Pugsley and Clayton, 2003). Participants on this tour greatly enjoyed gaining first-hand knowledge of the beef industry (36.4%) and valued the opportunity to apply classroom knowledge in a real-world setting (27.3%).

Students are more likely to internalize, assimilate, and retain information when they are actively engaged in experiential learning (Bonwell and Sutherland, 1996). Firsthand experiences allow learners to bridge the gap between theoretical concepts and practical application at greater depths than is possible to achieve through reading books or attending lectures (Higgins et al., 2012; Leydon and Turner, 2013). In addition, the opportunity to actively engage and apply course material in a novel manner increases the likelihood of retaining information and grasping complex concepts (Falk and Balling, 1982). As was the case with veterinary students observed by Alonso et al. (2020), firsthand experiences on this tour led to greater appreciation and understanding of animal science courses after seeing class concepts applied in the industry (36.4%):

“This trip really did change the way I think about my previous classes...It put them in a whole new perspective of application, and I have a greater appreciation.”

Seeing course material applied in a real-world setting also increased motivation for future course work and career preparation (Higgins et al., 2012; Achen et al., 2019; Alonso et al., 2020), reported by students after completing the tour:

“Seeing and hearing about feedstuffs used in real life scenarios stimulated my wanting to learn all I can in this upcoming class.”

Exposure to the industry through field trips not only provides a frame of reference for previous knowledge but also helps to construct a framework for students to apply knowledge in future courses (Bruening et al., 2002; Higgins et al., 2012) giving relevance to learning by demonstrating the utility of course concepts in practice. This in turn increases students' motivation to learn and seek out more first-hand knowledge or experiences (31.8%). Meaningful firsthand experiences inspire students to share their knowledge and experiences with others (45.5%) as they are able to see the practical value of concepts that may previously have been one-dimensional (Cheek et al., 1994; Scarce, 1997; Larsen et al., 2016; Achen et al., 2019). This was demonstrated in student reflections:

“After this trip I was able to see how the things I was taught were applied as a career. This trip made me want to sign up for classes that I didn't intend to take before.”

“I can use my experiences on the trip to confront the stigmas some people have placed on the [beef] industry and share my knowledge with them.”

Additionally, in accordance with Boogaard et al. (2010) and Alonso et al. (2020), participants identified gaps in their knowledge and understanding of the industry and felt that the tour effectively addressed some of their misconceptions (9.1%). After completing this tour, participants were motivated to ask more questions, seeking to understand rather than making assumptions (18.2%):

“I have my own opinions based on more of what I saw and less off of other people’s opinions.”

Students returned with a new appreciation for largescale livestock production (40.9%) and a greater understanding of the interconnectedness of the beef industry from ranch to packing plant (40.9%), saying:

“I gained a new respect for the beef industry as a whole. All of these people have some tough jobs, and I never knew how many people were behind the production of cattle. I am impressed with all of them, and I have gained a more thorough knowledge of the beef industry because of them.”

Field trips also increase feelings of belonging among students within their academic programs, Experiences outside of the classroom increase self-awareness and help students to develop a sense of purpose and optimism for future endeavors (Kuh, 1993). As one student very eloquently put it:

“I’ll take home the reminder that agriculture is big, necessary, and has a place for me.”

In addition to educational benefits, industry field trips in higher education allow students to explore professional opportunities and prepare to enter the workforce (Achen et al., 2019). By creating an environment where students may engage openly with faculty and industry experts in a professional setting, students were exposed to potential employment opportunities which aided them in defining their personal and professional goals, and allowed them to see themselves in a professional setting (Gore and Nelson, 1984; Higgins et al., 2012; Malbrecht et al., 2016). Several participants in the Panhandle Beef Production Tour felt that the trip helped clarify their career goals (22.7%). Through experiences on this tour, other students identified potential interest areas for the future in research or careers (13.6%). When asked what they will do as a result of their experiences on this tour, students were eager to begin taking steps to achieve their career objectives (81.8%) beginning with setting specific goals for career preparedness:

“There are many routes in the animal sciencelagriculture industry that I have never thought about.”

“I have a more open mind on the various careers I can choose from in agriculture, I am going to look into more of what is available to me.”

Networking opportunities provided by these types of experiences also help to create links to faculty and industry professionals which aid students in their transition to the

workforce or to graduate or professional school (Downey, 2012; Higgins et al., 2012). The Texas Panhandle Beef Production Tour provided students with the opportunity to visit beef production sites not generally accessible to the public to see course concepts applied in a real-world setting. This course also allowed students to engage with faculty and industry professionals beyond interactions typical of career fairs or interviews (Downey, 2012). Such interactions strengthen relationships between the university and industry partners, helping to produce and place high-quality graduates in related positions (Pecen et al., 2018).

Conclusion

Through this minimester course design, students gained valuable insight into livestock production, developed a greater appreciation for animal science course material, and were motivated to invest in their learning and seek additional experiential opportunities. In addition, students made connections with industry professionals and faculty that will aid them in their future endeavors. The creation of similar high-impact compressed courses in animal science and agriculture will be useful to contextualize course material, expand students’ prospects for future careers, and develop university-industry relationships. Indeed, such courses will likely prove valuable in any number of disciplines.

Conflict of interest statement

None declared.

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