

# Student Reflections on Personal and Professional Growth After a 16-week Immersive, Experiential Learning Program in Equine Science<sup>1</sup>

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## Abstract

Higher education plays a key role in the creation of a competent and adaptable workforce. In 2006, an immersive, 16-week, experiential learning program was created to foster professional development in upper-level equine science students. The objective of this study was to assess participants' perception of content knowledge, hands-on skills, career preparation, and personal growth gained from the program. Students ( $n=27$ ; 61% response rate) provided reflective feedback via Likert-type (4=very much; 3=somewhat; 2=slightly; 1=not at all) questions, and open-ended queries to elaborate on ordinal responses. In general, students felt that the program played a key role in preparing them for a career in the horse industry or the animal, veterinary or medical sciences (mean response  $3.82 \pm 0.09$ ). While students indicated the program was effective in facilitating desired improvement in equine-related knowledge and hands-on skills ( $3.77 \pm 0.08$  and  $3.74 \pm 0.09$ , respectively) and enhanced understanding of research ( $3.63 \pm 0.12$ ), personal growth in transferable skills was also a prominent outcome ( $3.48 \pm 0.11$ ). Eighty-nine percent of respondents reported improvements in communication, and/or the ability to work with and value others, as the most useful outcomes related to transferable skills. Overall, results suggest that learning content and technical skills in an immersive, authentic environment additionally facilitates gains in interpersonal competencies.

## Introduction

Recent surveys find many college graduates unprepared for employment, with increasing employer emphasis on transferable skills (e.g., communication, collaboration, problem-solving, scientific literacy) rather than specific knowledge or technical proficiencies (Fischer, 2013; Hart Research Associates, 2015). As a result, educators must devise alternative ways to deliver student-centered, authentic experiences that promote both personal and professional growth (Brickman et al., 2009; National Research Council [NRC], 2009). Immersive, experiential learning programs can offer new ways to supplement traditional classroom- or laboratory-based curricula and develop soft skills desired by employers (Hodge et al., 2011).

Experience-based learning allows students to create new knowledge through transformation of experience (Kolb, 1984). Kolb's learning cycle generally begins with students participating in a concrete experience, upon which they reflect, generalize and draw inference through abstract conceptualization, adjust their worldview to incorporate this new information, and then form and test these new hypotheses through active experimentation and a subsequent concrete experience. Experiential learning in authentic contexts, reflecting student career interests and declared learning objectives, creates deeper understanding than didactic learning, due to the active, practical and relevant nature of the lessons learned (Manolis et al., 2013). This type of learning is also

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based in constructivist learning theory, with contextual learning influenced by prior experience (Dewey, 1938), and characterized by dynamic ownership by students of personal knowledge creation (Splan et al., 2011).

Appropriate time for reflection is a large component of experiential learning, although it can be a major limitation in assessing the ability of experiential learning paradigms to effect developmental change in an individual. Personal growth often requires fundamental reframing and altering of one's belief systems, and is often a long-term process (Hodge et al., 2011). Reflection during the experience may provide instructors or facilitators some measure of formative assessment, but students may not realize some program impacts until they have sufficient time to reflect upon the experience or are challenged to transfer their new knowledge to a new situation.

Another key feature of undergraduate learning programs which are successful in promoting personal and professional growth is individualized and group mentoring of students by faculty and staff. Mentoring is often reported to have both career and psychosocial benefits, including academic performance, retention, self-esteem and self-confidence (Kram, 1985; Campbell and Campbell, 1997). A mentoring model for educational settings (Brzosa et al., 1987) identified mentor functions of informal contact, role modeling, direct assistance, demonstration, observation and feedback, and professional development planning assistance. These mentor functions are characteristic of undergraduate agricultural sciences programs, which, by nature, are often experiential in design and offer rich opportunities for faculty- or peer-mentoring of students (Wolfe et al., 2008).

With this theoretical background in mind, a novel undergraduate learning context was created in 2006 at a major land-grant university which removed students from the typical academic setting and fully immersed them in an intense, highly-authentic learning environment congruent with their motivations and desired career paths. The program targeted equine science students, whose anticipated careers often require a high degree of both technical skill and content knowledge, in addition to general social and scientific competencies (Splan and Porr, 2011).

Initially, the program was located on the university's equine teaching center on the main campus, and was conducted during the summer months from 2006-2009 under the direction of one of the authors. In 2010, the program was relocated to a large, university-owned, equine research and extension center roughly 400 km from campus, and was expanded to also include spring and fall semesters for academic credit, and was executed in cooperation with a second faculty member and staff member.

The program drew heavily on experiential learning theory. Students were treated as a cohort responsible for daily herd health and reproductive management of 40-50 horses, and, in addition to their on-site equine coursework, participate in equine science and management-related field trips, industry events, workshops and

seminars hosted within the mid-Atlantic region. Further, the students assist faculty and graduate students with ongoing equine research projects. Increased emphasis on scientific literacy, data fluency and research experience was added to the curriculum in 2010 to improve student understanding of knowledge creation and application in both personal and societal contexts, and to better prepare students for STEM-based careers (Brickman et al., 2009). As a result, students were given more opportunity to conduct group or individual experiments, and exercises in scientific writing and review of recent scientific literature related to equine, animal and human health sciences were added. Technical competence in horse handling, horse management, and basic laboratory skills was developed through demonstration, guided practice and then independent practice. In addition to these program-wide learning objectives, students also developed three to four personal learning objectives at the beginning of the semester, which were then incorporated by program faculty and staff into the curriculum as the semester unfolds. Students met informally with instructors throughout the semester to assess progress on learning objectives and reflect on knowledge, skills, or insight gained.

The program was open to students enrolled in any college or university across North America. Cohort size is limited to six to eight students per semester (n=18-24 students per year). Recruitment consisted of thrice-annual emails to instructors and faculty in undergraduate equine science programs at two- and four-year institutions across the country, information on the facility website and through social media. Up to 80 students generally applied annually for a position in spring, summer or fall components of the program, making acceptance into the learning experiences competitive in nature. Participant selection was based on academic merit, year of expected graduation, articulated career objectives, previous experience, student interviews and input from references. Students with junior or senior standing were preferred, and recent graduates (within six months) were allowed to participate in the summer program.

In 2011, the program was expanded internationally through a partnership with the British Equestrian Federation (BEF). Undergraduate students in equine science programs across the United Kingdom competed for an experiential learning and research internship position during the summer session. One student per year was selected by BEF personnel and university faculty on the basis of an application, research paper, and face-to-face interview via free commercial voice and video over internet protocol software. To the authors' knowledge, this represents the first collaborative partnership between an international governing body of equestrian sport and an undergraduate equine science program in the United States.

Despite perceived program success, no formal evaluation of impact has been conducted to date. Therefore, the purpose of this descriptive and exploratory cross-sectional study was to examine efficacy of an

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experiential learning program designed to deliver personal and professional learning gains, as determined by previous program participants.

### Materials and Methods

All students who had participated in the program from its inception in the summer of 2006 through summer 2011 (n=43), were invited via electronic and social media to complete an anonymous, online, 19-question survey, administered through the university survey application, in February 2012. The 'cutoff' date of summer 2011 was chosen to allow survey participants at least six months of post-program reflection time. All survey materials and procedures were approved by the university's Institutional Review Board prior to data collection and participants provided consent via completion of the anonymous survey instrument. Response rate was 61%. Students completed multiple choice questions related to year and semester of experience, career aspirations and current job placement, and also provided reflective feedback via Likert Scale (4=very much; 3=somewhat; 2=slightly; 1=not at all) and open-ended queries to determine program impact.

A panel of 4 individuals with expertise in survey methods (n=2) and equine-related experiential learning (n=2) reviewed the instrument and found it to possess face and content validity. As the instrument included a series of questions designed to examine the pedagogical construct of experiential learning, reliability was gauged using Cronbach's alpha, which was found to be 0.91.

### Results and Discussion

Mean responses for perceived benefits of the experiential learning program are shown in Table 1. Emphasis on research in equine science was added in 2010, so only responses from 2010 and 2011 are included for this item.

**Current occupation and career aspirations.** The majority of respondents (41%) were currently enrolled in post-baccalaureate education programs, including graduate school (19%), veterinary school (15%) and pharmacy school (7%), at the time of the survey. Another 30% were employed in the equine industry as breeding managers (7%), veterinary technicians (7%), or as a riding instructor, tack store retail associate, Cooperative Extension equine program associate or veterinary assistant (16%). Two respondents were currently employed in the non-equine area (human embryologist and small business manager), while the remaining students (22%)

were still enrolled as undergraduates at their home institution at the time they completed the survey. Considering their ideal career choice, only 37% of respondents indicated they would like to pursue a career in the equine industry. The remaining students indicated preference for a career in the veterinary or animal sciences (44%), human health or medical sciences (15%) or Cooperative Extension (4%).

**Perceived program benefit.** Students were asked to share general perceptions of program impact on improvement of knowledge and hands-on skills related to equine care, handling or herd health management via Likert-scale questions, and then asked to identify the 'most important or useful' learning gains in subsequent reflective, open-ended queries. As seen in Table 1, students indicated the program improved their knowledge and hands-on skills related to equine care, handling or herd health management; improved their knowledge of the sporthorse industry; increased their knowledge of research in equine science and enhanced their life skills.

**Table 2. Student responses when asked to identify the most important or useful "life skill" gained during enrollment in the program, from those students who identified interpersonal growth as the primary outcome (n=23 of 27 participants)**

Participant (random order)	Student Reflection
1.	Communication skills with others working together as a team. Value of opinions or observations from others.
2.	Working as a team.
3.	PATIENCE with others whose top priorities may conflict with your own.
4.	It definitely taught me team work and the value of hard work.
5.	Communication with others is key to making a team run, and that everyone has their own opinion so it is important to listen and respect what they have to say.
6.	Keeping calm and collected in tense situations will lead to a much better outcome for everyone.
7.	Working as a team.
8.	Helped me learn how to better lead my peers.
9.	To learn to take more of a leadership role when working in a group.
10.	Communication and conflict resolution.
11.	If anything I think I learned more about myself going through the program. How I deal with people, how I need to change how I deal with others. Communication is everything, you don't have to like everyone but you must tolerate and respect them enough to work with them.
12.	To be able to work with people with different personalities and attitudes.
13.	I feel that I had good "life-skills" before my program, but this experience gave me great opportunities to practice with different people to work towards the same goal. We were also given great opportunities to "think critically".
14.	Having the opportunity to work with others from different backgrounds improved my ability to communicate clearly.
15.	Using my teamwork skills along with critical thinking to solve problems.
16.	Working with others.
17.	I learned about working with people with different skill levels and abilities to maximize productivity. I also think working with people with different personality and priorities was important to enable the group to still function.
18.	Communication is vital.
19.	Improvement in communication.
20.	Patience (especially with other people) is a virtue.
21.	Critical thinking and communication.
22.	Working with others. Developing respectful means of communication and maturing in the way that I communicate with others.
23.	Collaboration and leadership within a diverse group of peers and mentors.

**Table 1. Perceived benefit of immersive equine science learning program<sup>1</sup>.**

Perceived benefit of program	Mean±s.e.
Played a key role in preparing me for my chosen career	3.82±0.09
Improved my knowledge related to equine care, handling or herd health management	3.77±0.08
Improved my hands-on skills related to equine care, handling or herd health management	3.74±0.09
Improved my knowledge of research in the equine industry	3.63±0.11
Improved my knowledge of the sporthorse industry	3.63±0.11
Improved my transferable skills	3.48±0.11

<sup>1</sup>Likert scale: 4=Very Much, 3=Somewhat, 2=Slightly, 1=Not at all

The most significant gain in knowledge reported by students was in herd health management (44%), followed by reproductive management (37%), marketing (8%) and training (8%). Foal and young horse handling skills were the most useful skill-based outcomes identified by program participants (63%), followed by herd health management (26%) and reproductive management (11%) skills.

In answering open-ended queries, communication skills and the ability to work with colleagues with different viewpoints or personalities were identified as the most important learning gains in life skills by nearly all (85%) students (Table 2). Interestingly, when asked to describe the program's most profound impact, students generally reflected on transferrable skills or personal growth, rather than specific content knowledge or technical proficiency gains. Representative responses are shown in Table 3. For students who participated in the residential program (2010-2011, n=18), on-site housing was largely seen as a positive and critical feature of the program, both in its ability to promote personal growth and allow participants to experience herd and breeding management in a real-world, around-the-clock setting.

In general, students who participated in the immersive program at either location indicated they enjoyed their experience (3.81±0.11), were confident that it played a key role in preparing them for their chosen career, and all but one (96%) indicated they would recommend the program to other students.

**Summary**

In general, students felt the program delivered significant benefits to their knowledge and hands-on skillset in the equine area, and played a key role in preparing them for their chosen career. An advantage arises over didactic instruction as experiential learning techniques foster a depth of learning and cognitive recall necessary for transfer (Furman and Sibthorp, 2013). Although improvement in soft skills were not the driving motivation for program enrollment, students indicated they improved in these areas as a result of program structure, and the extended hours students spent working, and often living, together with other students and faculty/staff on-site during their 16-week experience. Previous work with college students participating in residential learning communities have indicated similar gains (Bobilya and Akey, 2002), but to our knowledge this is the first report of transferable skills gains in a faculty-led, immersive, integrative learning program for equine science students. Given the call from employers for increased transferable skillsets among college and university graduates, educators and administrators may wish to consider faculty-led semester- or summer-long immersive learning experiences among undergraduate students.

**Table 3. Selected narrative reflections on overall impact on personal and professional growth.**

(Summer, 2007): "This program really improved my confidence in my knowledge of equine reproduction and the fact that it was definitely something I wished to pursue further. I became more comfortable around the horses and felt that the hands-on experiences helped me understand what I was learning in the classroom."
(Summer, 2008): "It showed me that I would rather work in equine-related industry or extension than directly on a farm."
(Spring, 2010): "This program had a huge impact on my personal growth. Before partaking in the Middleburg program I had what I thought to be a pretty good grasp on my education and also work ethic. However one of the most valuable lessons I learned during my internship is that sometimes the hardest part of the job is learning to work with others. This is a skill that is typically not emphasized during ones college career, which is a shame because I find it to be one of the most limiting factors for most students entering the work force upon graduation. The impact that this program had on my personal character is one that I can only wish for others that go through the program. I not only became more self-aware of my actions and their impact others and the work atmosphere as a whole but also left with the realization that I had done my education a disservice for the three prior years of my undergraduate studies by not taking full advantage of all the opportunities that where available."
(Summer, 2010): "This program taught me that I wanted to explore research a little bit more, but that I also really enjoy working in the industry, especially in breeding and youngstock. From that I decided that pursuing a Masters degree would be good option for me. This program taught me to work with many different personalities and attitudes and how to get everyone to work together despite their differences. It also taught me to step up and be a leader when needed, but to also sit back and let others lead when needed."
(Spring, 2011): "The program had the greatest impact on my professional growth in the way that it opened my eyes to the very wide variety of aspects of the equine industry that one can be involved in, which was indeed a large part of what I was seeking from the experience. I also experienced a wealth of personal growth, as it was another huge step in the journey of learning how to live, work, and socialize with people that I may or may not have normally chosen for those roles in my life."
(Summer, 2011): "I was able to gain skills I could not have hoped to procure elsewhere. The hands on work with both the reproduction and management aspects of the equine industry was invaluable. We were able to have contact with very prominent figures in the sporthorse industry that could be utilized at a later time if you were looking for a career in the industry. Also, given my desire to be active in research, I was given the opportunity to participate in research beyond the summer. I could not have jumped on a project so easily at my institution."

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