Characteristics and Employer Perspectives in Undergraduate Animal Industry Internships

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Abstract

Traditional employee screening processes are often based on academic performance. However, there can be a dichotomy between academic achievement and employee job performance. This study examined 11 years of records from 171 animal industry internships from students enrolled in an Associate Science degree programs. Internship employers evaluated employees on thirteen performance criteria using a Likert scale. Correlation analysis was performed between employer evaluation and intern salary; pre-internship cumulative grade point average (GPA), pre-internship practicum GPA and graduation. The GPA at the time of the internship was not different between students who graduated (2.88 + 0.49) compared with students who did not (2.47 + 0.58) so data was combined. The average intern earned minimal wage. Areas scored the lowest by employers were work speed (4.3 + 0.77) and technical knowledge (4.2 + 0.76) while cooperation with co-workers and acceptance by supervisors were identical (4.6 + 0.55). Work quality was positively correlated ($p < 0.05$, $r = 0.16$) with both GPA and salary. Technical knowledge was also positively correlated ($p < 0.01$, $r = 0.20$) with salary. Based on these data, academic indicators may not be the best predictor of employee performance, and students with a higher degree of technical skills may receive higher internship salaries.

Introduction

The Ohio State University Agricultural Technical Institute (Ohio State ATI) is an open enrollment institution where students pursue associate of applied science (AAS) degrees or associate of science (AS) degrees. The institute is organized within the College of Food, Agriculture, and Environmental Sciences at the Ohio State University, whose main campus is located 90 miles south of Ohio State ATI's rural Wooster campus. Each student must successfully complete carefully sequenced technical and general courses as prerequisites for upper level courses which are required for Associate degree completion. Students earning AAS degrees are expected to apply learning from their coursework to a required occupational internship. Students earning AS degrees must gain a strong academic foundation before they transfer directly into baccalaureate programs at the main campus. They do however have the option of completing an internship as part of their AS degree.

Ohio State ATI's teaching philosophy and institutional mission are based on a hands-on, experiential learning approach that provides students with both classroom theory and technical skills. Ohio State ATI opened its doors in 1972 and began requiring occupational internships in all majors in 1974. Required practicum courses (which are hands-on experiential, on-campus, learning models) were added in 1975. All AAS degrees require both experiential learning models (practicum and internship) to fulfill graduation requirements. Ohio State ATI incorporates semi-directed internships into their various curricula. Jackson and Jackson (2009) define semi-directed internships as those that meet the following criteria: 1) students receive academic credit, 2) college and/or university provides contacts for possible internships to students, 3) provides standardized forms to the employer for work performance assessment and 4) waives the university's liability for mistakes the student may make during their internship. Thus, students must obtain their own internship and act as an interface between the internship supervisor (faculty member) and the employer.

There have been numerous articles published during the last 10 years that document the benefits of career internships in college education. Tangible benefits for students that successfully complete college internships include: higher starting salaries (Gault et al., 2008; Coco, 2000); higher job satisfaction (Gault et al., 2008; Devine et al., 2007); more job opportunities after graduation (Coco, 2000; Devine et al., 2007); and improved job related skills (Devine et al., 2007; Knemeyer and Murphy, 2002). Additionally, student surveys indicated intrinsic benefits as well, including: development of communication skills (Knemeyer and Murphy, 2002); improvements in creative thinking; improved job interviewing and networking skills (Gault et al., 2008) and improved self-confidence and leadership skills (Lee, 2007). Benefits of college internships to other stakeholders, namely employers and universities, have been reported in the literature as well. Employers acknowledge that internship programs provide them with the best selection of future full-time and part-time employees (Coco, 2000; Devine et al., 2007); improve hiring decisions (Coco, 2000; NACE, 2005); and provide networking to colleges and

universities that promote an influx of new ideas (Thiel and Hartley, 1997). Universities believe that internship programs aid in college recruitment (Devine et al., 2007); improve their reputation (Thiel and Hartley, 1997); provide sources for external funding (Gault et al., 2008) and provide community networking and business input (Thiel and Hartley, 1997). Unfortunately, recently published articles regarding internship benefits often cite older research from the 1970s and 1980s, so current data on internships is limited. Furthermore, literature on agriculturally based internships is very limited. Therefore, the objectives of our study were to 1) characterize animal science internships 2) evaluate undergraduate job skills 3) determine if academic factors are successful in predicting superior job performance and 4) evaluate the relationship of salary to employer expectations.

Methods

This study examined records from 140 equine and 31 swine industry internships from students enrolled in Associate of Science programs from 1996 to 2006. Internships were either completed following one year of coursework and practicum experience or immediately prior to graduation and could be completed during any quarter. Internships were semi-directed and were comprised of a wide variety of internship types, locations and supervisory methodologies. Faculty internship instructors (Ohio State ATI tenure-track faculty) remained the same throughout the 11 year period. Internship information included: employer, employer contact information, dates of employment, position responsibilities, and daily hours of work, wages/salaries, and other compensation, was collected by the student and approved by the faculty instructor and employer. Intern compensation were categorized as voluntary, below minimum wage, minimum wage, above minimum wage and well above minimum wage (> 150% minimum wage) based on federal minimum wage guidelines in effect at the time of the internship. Additionally, remuneration was adjusted to include other forms of compensation such as room, meals, horse board, and show expenses.

Internship supervisors evaluated employees monthly using standard 'Internship Evaluation' forms, which remained consistent throughout the study. Supervisors scored student interns on 13 criteria, including: punctuality; willingness to learn; dependability; work quality; acceptance of constructive criticism; personal appearance; cooperation among co-workers; work speed; professionalism; supervisor acceptance; acceptance by customers; technical knowledge and overall performance using a Likert type scale ranging from 1-5. Descriptive terms were provided to the supervisor as follows: 5 (Superior), 4 (Good), 3 (Average), 2 (Fair) and 1 (Poor). Cumulative pre-internship grade point averages (GPA), pre-internship practicum GPA and post-internship graduation status were obtained from the ATI Office of Academic Affairs. Graduation was measured as completion of the Associate's degree program requirements with no specified time frame.

This study was deemed exempt by the Ohio State University Institutional Review Board.

Correlation analysis (Pearson) was performed between employer evaluation criteria and intern salary; pre-internship GPA, pre-internship practicum GPA and post-internship graduation status using least square means. Differences in internship location between equine and swine internships and between intern compensation (volunteer vs. paid) and employer evaluation of interns were analyzed using Chi-Square test. Significance was reported $p < 0.05$, and trends were reported with $p < 0.10$. All statistics were performed using SAS (SAS Institute, 2002).

Results and Discussion

The equine industry is a highly diverse industry with a plethora of careers representing it. Student interns found employment in many fields including: Standardbred and Thoroughbred racing; training, showing, boarding; recreation and tourism; equine support industries (health, tack, supplies) and breeding and production. Swine internships were not as diverse with the majority of students (76%) finding employment in the production field. Alternative swine internships included the areas of nutrition, showing, pork processing facilities, and swine facility construction (Table 1). Interns in both the equine and

Table 1. Internship Types: Percentage over 11 Year Period

	Equine Internships (%) (n = 140)	Swine Internships (%) (n = 31)	Combined (%) (n = 171)
Training/Showing/Boarding	38.7	5.9	32.2
Production	14.7	76.5	26.8
Recreation	30.6	0	24.6
Racing	10.2	0	8.2
Industry Support	5.8	11.8	7.0
Research	0	5.8	1.2

Figure 1. Distribution of undergraduate animal science internships. Numbers indicate internships completed per state.

swine industries were most likely to seek and find employment within state (Ohio, 73%) compared to out-of-state (Figure 1). Many students appeared reluctant to move out of state even for the short duration of the internship. It is likely that age, maturity, friends, and family connections, and difficulty securing temporary housing for short-term employment are all contributing factors to their reluctance to seek out of state internships. Numerous equine internships were located in Colorado and Texas given the abundance of summer recreational equine opportunities in those areas. By comparison, few swine students migrated to leading pork producing states such as Iowa and North Carolina.

The mean salary of undergraduate student interns in this study was minimum wage. However, the median salary of undergraduate agricultural interns was above minimum wage. Salary distributions were as follows: volunteer (no compensation), 8.7%; below minimum wage, 16.3%; minimum wage, 30.8%; above minimum wage, 42.4%; and greater than 150% of minimum wage, 1.7% (Figure 2). Swine internship salaries on average were above those of equine internships. This is likely due to the vocational nature of swine production versus equine production which is more of an avocation. However, salary-based gender bias was difficult to determine due to the predominance of male and female self-selected swine and equine careers respectively. Volunteer internships were almost exclusively equine (Figure 2).

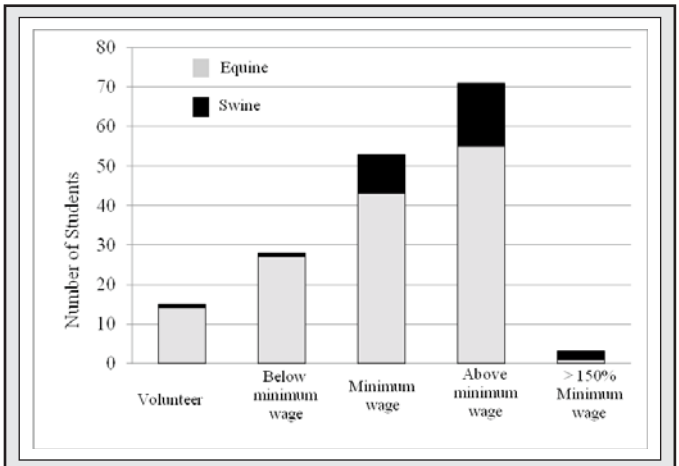

Figure 2. Internship salary distribution in undergraduate animal science programs.

Internship salaries in this study were considerably lower than intern salaries reported by others. Nagle and Collins (1999) reported average hourly internship salaries of $10.52 with summer employees earning $9.07/hr., this equates to 50% above minimum wage. Undergraduate interns in the engineering ($12.25/hr to $13.93/hr) and business fields ($10.88/hr to $11.58/hr) were also better paid. We hypothesize that the difference between the average salary in our study and other reported internship salaries most likely reflect differences in starting salaries in agricultural disciplines when compared to other careers. The degree being sought (Associate of Science vs. Bachelor of Science) may also be a factor in the salary discrepancy since M.B.A. interns earned more than $20/hr. (Nagle and Collins, 1999).

Overall, interns received high evaluation ratings from their internship supervisors averaging 4.0 to 4.6 across the 13 criteria. Comparison of evaluation data from students that graduated with an AAS degree vs. non-graduates was not different (Table 2), so data were pooled for subsequent analysis. Employers consistently rated student interns very highly in the areas of: cooperation among co-workers; supervisor acceptance; willingness to learn; and acceptance by customers. Similarly, employer written comments were consistent with the Likert scores and included comments such as "compatible with fellow workers as well as customers…not afraid of work…dependable;" and "learns very quickly…dependable and willing to do whatever it takes to get the job done." Interns received the lowest employer ratings in technical knowledge and work speed. Employers indicated that students "could use a little more confidence when working with horses… technical knowledge is ok for working as my assistant but would definitely need more before starting own business;" "only area of improvement is to become technically stronger which comes with experience;" and "needs to kick up the work pace."

Table 2. Comparison of Intern Evaluation Ratings Based On Post-internship Graduation Status

Evaluation Criteria	Graduated	Did Not Graduate
Punctuality	4.6 ± 0.64	4.4 ± 0.83
Willingness to Learn	4.5 ± 0.58	4.5 ± 0.68
Dependability	4.5 ± 0.73	4.4 ± 0.78
Work Quality	4.5 ± 0.62	4.3 ± 0.83
Acceptance of Constructive Criticism	4.4 ± 0.69	4.3 ± 0.73
Personal Appearance	4.6 ± 0.52	4.4 ± 0.54
Cooperation among co-workers	4.6 ± 0.56	4.6 ± 0.44
Work Speed	4.3 ± 0.75	4.2 ± 0.73
Professionalism	4.4 ± 0.72	4.3 ± 0.81
Supervisor Acceptance	4.6 ± 0.53	4.5 ± 0.56
Acceptance by customers	4.5 ± 0.53	4.5 ± 0.52
Technical Knowledge	4.3 ± 0.68	4.0 ± 0.88
Overall	4.5 ± 0.63	4.3 ± 0.73

Evaluation ratings are expressed as the mean ± standard error of the mean based on a Likert scale from 1-5 (5 is high). No statistical differences in intern evaluation ratings between those students that graduated compared to those that did not graduate. However, evaluation scores for non-graduates never exceeded those received by graduates.

The high evaluation ratings observed in this study could be indicative of several important factors that include: supervisor satisfaction with intern performance, adequate match of intern and job placement, congruency between supervisor and employee expectations or leniency or unfamiliarity with employee performance evaluation techniques. A recent study conducted by McDonough and associates (2009) reported similar results. They incorporated a 34 statement questionnaire in which they

compared intern and supervisor responses to competencies categorized into four groups: general abilities in the workplace, specific skills, interpersonal skills and professional conduct. Similar to our study, they incorporated a 5-point Likert scale to describe job competencies. Evaluations occurred at the midway point and at the end of the internship and evaluated criteria were similar. McDonough et al. (2009) reported both supervisor and student intern ratings between 4.2 and 4.8 on the 5-point Likert scale, with students consistently rating their performance higher than their supervisors' rating. In our study, we only looked at supervisors' evaluations, but they were always high. These phenomena may suggest employers are supportive of internship programs for a variety of reasons. Interns represent a relatively inexpensive form of labor, they are available seasonally and employers may want to encourage young career-minded professionals to enter the job market.

Alternatively, students at Ohio State ATI complete practicum courses prior to their internships. Practicum consists of skill development activities relative to the students' field of study as well as basic industry related tasks. ATI faculty supervise students closely throughout practicum courses and have working knowledge of individual student strengths and weaknesses. Thus, students should be at least minimally prepared for internship and matches between students and employers may be more suitable because of faculty familiarity with job tasks and the observed skill sets of students.

Students may have received lower employer-evaluation scores in work speed because educational resources at Ohio State ATI, such as animal numbers, typically do not mirror industry scope or scale. Thus, students are limited in the ability to develop efficient work skills. Alternatively, some students seem to lack intrinsic motivation to practice until skill mastery is achieved. The lowest rated criterion by employers was technical knowledge. Many students fulfill their internship requirements between their first and second year of college. Thus, students are completing their internship without the benefit of any coursework in some technical areas. Another contributing factor may be the myriad of techniques, industry practices, and resources (e.g. computer software) used by employers to which students may not have been previously exposed.

Although overall internship evaluation ratings were high, it was uncommon for students' to receive 'perfect' evaluations, consisting of all thirteen criteria being evaluated as a '5' or 'superior'. Chi-square analysis revealed that students performing volunteer internships (n= 15) were more likely ($P > 0.05$) to receive perfect evaluations (40%) compared to students who were compensated (n =156, 17.5%). It is possible that employee supervisors were more lenient on employee evaluations because labor was free. This may imply that students enrolled in a volunteer internship possess an advantage in course grading if supervisor evaluations are part of the course assessment process.

One of the objectives of this research was to determine if measures of academic achievement (cumulative GPA and/or practicum GPA) could be used as a predictor of internship success. In the present study, no correlations were found between the cumulative total of supervisors' evaluation of intern performance and any objective academic assessment tools (cumulative GPA and practicum GPA). However, correlations were detected between academic achievement and several specific internship evaluation criteria. Cumulative GPA was weakly but positively correlated ($P < 0.05$) with both 'punctuality' ($r^2 = 0.16$) and 'quality of work' ($r^2 = 0.15$). A student's practicum GPA had no effect on any criteria evaluated by supervisors during the undergraduate internship. It is possible that many characteristics that describe the ideal employee are not related to academic performance indicators. The AAS programs at Ohio State ATI typically attract students that have a career and technical educational (CTE) background and often excel in activities that incorporate active and applied pedagogical methods. This style of learning aligns well with Gregorc's (1982) description of concrete, sequential learners. Orr and associates (1999) reported that students enrolled in vocational technical institutes with one dominant learning style were more likely to be concrete sequential learners. Others suggest that course grades, and consequently, cumulative GPA, may be influenced by the learning styles of faculty compared to students, either matched or mismatched (Thompson et al., 2002). Elliott (2007) reported that students characterized as high kinesthetic learners were associated with lower high-stakes test scores and were predominately found in CTE students. Thus, students' cumulative GPA may not be a good indicator of job performance success.

Technical knowledge was positively correlated ($P < 0.01$) with internship salary, ($P < 0.10$) as was 'willingness to learn' and 'quality of work'. This suggests that students possessing a higher level of technical skill and/or competency or those that are perceived by employers to be highly motivated to learn may be better compensated during their undergraduate college internships.

Summary

The internship experience is an important one for students. It provides additional opportunities for learning, gaining of experience, and provides additional exposure to alternative industry practices, techniques, and resources. Many students would likely gain more valuable life experiences if they would seek internships solely on their merit and educational opportunities rather than on ancillary factors such as distance from home. Student internship success cannot be predicted by academic performance indicators such as GPA. Internship salaries

may be influenced by students' prior experience and technical expertise or the employer's perception thereof. This study also shows the labor cost to the employer may influence internship evaluations, particularly for volunteer internships.

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