

Secondary Agricultural Education Student Injuries and Other Accidents Sustained In An Agricultural Mechanics Laboratory

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Introduction

- The agricultural educators' most important role in agricultural mechanics instruction is to ensure student safety is a top priority (Dyer & Andreasen, 1999).
- Agricultural mechanics draws so much interest is the substantive amount of time spent in an agricultural mechanics laboratory learning hands-on skills (Hubert, Ullrich, Lindner, & Murphy, 2003).
- By incorporating laboratory based experiences for students requires teachers to become more attentive to student safety concerns.
- Agricultural mechanics laboratories are an inherently dangerous learning laboratory because of the age and experience level of the learners being introduced to the operation of power mechanics machinery (Dyer & Andreasen, 1999; Shultz, Perry, Byrd, & Anderson, 2012).



Theoretical Framework

- The theoretical framework that guided this study was the disaster theory (Downer, 2010).
- Turner (1976, 1978) found that a series of main-made disasters presented warning signs that if acted upon could have been averted.
- Social implications superceded engineering problems, thus indicating that disasters could have been avoided.
- Students tend to disregard rules, which results in not understanding the consequences of unsafe behaviors (Hubert et al., 2003)



Methodology

- The data collection instrument developed by Johnson, Schumacher, and Stewart (1990), and later modified by Saucier, et al. (2009), was used for data collection.
- A three-section instrument was utilized to address the research questions of this study.
 - The first section of the instrument consisted of 70 statements with double-matrix response scales.
 - The second section of the instrument was used to identify personal, professional, and program characteristics.
 - The third section of the instrument was used to collect the type and frequency of injuries sustained in an agricultural mechanics laboratory.
- Dillman's (2007) data collection protocol was followed resulting in response rate of 49% ($n = 72$).
- Non-response error procedures for handling non-respondents were followed as outlined by Lindner, Murphy, and Biers (2001).



Results

- Teachers reported 114 minor injuries that did not require students to leave school for treatment.
- Only three major injuries were reported that required the student to leave school for medical treatment.
- The most frequent injuries reported were lacerations, abrasions, and burns.

Table 1
Demographics of Iowa Agricultural Education Teachers

Demographic	<i>f</i>	%
Gender		
Male	49	74.2
Female	17	25.8
Years Experience		
0-5 years	21	31.8
6-10	7	10.6
11-15	6	9.1
16-20	12	18.1
21-25	4	6.1
26-30	6	9.1
More than 30	10	15.2
Type of Certification		
Traditional	65	98.5
Alternative	1	1.5
Number of Injuries		
Minor	114	100.0
Major	3	100.0

Results

Table 2
Frequency of Student Injuries as reported by Iowa Agricultural Education Teachers

Type of Injury	Frequency			
	1-5	6-10	11-15	16 +
Lacerations	31	3	3	3
Abrasions	21	3	0	1
Eye Injuries	11	0	0	0
Burns	33	3	0	2
Muscle Sprains	1	0	0	0
Crushed Appendages	1	0	0	0
Severed Appendages	1	0	0	0
Slips/Trips/Falls	12	2	0	0

Table 3
Types of Student Injuries and Care Given reported by Iowa Agricultural Education Teachers

Type of Injury	First aid given by				
	Teacher	School Nurse	EMT	Doctor	None required
Lacerations	33	29	0	15	5
Abrasions	25	14	0	1	5
Eye Injuries	9	7	0	4	3
Burns	34	24	0	5	3
Broken Bones	0	0	0	1	3
Muscle Sprains	0	0	0	0	4
Crushed Appendages	1	2	1	2	3
Severed Appendages	1	1	0	1	3
Hearing Injuries	0	0	0	0	3
Slips/Trips/Falls	7	3	0	0	10

Conclusions

- The 66 agricultural education teacher reported on average less than two minor student injuries that did not require the students to leave the school for medical attention over the course of their teaching careers. This is further supported by only three injuries that required medical attention.
- The low number of injuries reported per teacher indicates that the teachers are putting student safety as a top priority, which is supported by the findings of Shultz, Anderson, Shultz, and Paulsen that safety is the most important topic taught in Ag mech.
- This data should be shared with preservice teachers to show that accidents do happen, but can be avoidable. The preservice teachers should also learn that major injuries do happen, but are a rarity when supervised in safe learning environments.
- There were eleven eye injuries reported, this leads the researchers to wonder if those injuries could have been avoidable by wearing safety glasses. This could align to the suggestions of the disaster theory that those injuries could have been avoidable. The researchers recommend that agricultural education teachers should continue to model and enforce safe work habits.
- The agricultural education teacher administered some level of medical attention for 110 of the 117 accidents indicating the importance in assuring the teachers should be prepared to administer first aid. The researchers recommend that teacher receive up to date training that could be administered annually at the state teachers association meeting.