

SERVICE TRAINING IN THE AGRICULTURE EQUIPMENT INDUSTRY

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A paper submitted to the graduate faculty
in partial fulfillment of requirements
for the degree of:

MASTERS OF SCIENCE IN AGRICULTURAL EDUCATION

University of Wisconsin-River Falls
2012

ABSTRACT

The demand for service training continues to increase in the agriculture equipment industry as technology is adopted and advancements continue to be made on equipment. Service technicians need to be prepared when servicing customer's equipment. In this study I investigated the structure of service training and components of service training. The survey provided feedback on service training from service managers at dealerships. This information will allow service training to be effective and efficient. The population surveyed consisted of service managers from AGCO, Case IH, John Deere and New Holland dealerships. For the first part of the study I sent out a survey to the service managers that asked questions related to the structure, location, and cost of service training. Then I conducted phone interviews with service managers about the structure and components of service training, while receiving feedback on instructor and web based training.

This study showed that there is a similar structure in service training among the four major North American equipment manufacturers surveyed. There were similarities in materials used during instructor based courses, along with advantages and disadvantages of web based learning courses among the manufactures. I believe there will continue to be a mixture of instructor and web based service training courses because the research showed that hands on activities are an important part of learning.

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CHAPTER ONE: INTRODUCTION

The agriculture equipment industry is evolving quickly with the adoption of technology, which means service technicians at dealerships need to continue their education to be able to serve their customers. Service training has evolved from localized meetings held seasonally to update the technicians on new upcoming products to a year round, fully staffed, all-encompassing educational experience.

The goal of service training today is to develop a curriculum that provides the students with the knowledge and experience with the equipment, to better troubleshoot customer concerns in the field. This is achieved by dedicating a department and staff at the corporate level to train the service technicians at the dealership level. Within this training division, individuals' work to develop curriculum that creates a community environment, while providing the students with a challenging, hands on learning experiences. This provides the technicians with the ability to apply the knowledge they have learned in training to real world experiences, which allows them to better serve their customers.

To keep up with the growing demand for training, web based training courses are becoming more prevalent in the agriculture equipment training industry. As AGCO, Case IH, New Holland and John Deere, the major agriculture equipment brands in North America, put more emphasis on service training, it is important to evaluate the effectiveness and availability of training for service technicians at dealerships.

Purpose

There are two important components to all service training, the structure and components. This study provided insight on how the four major agriculture equipment manufacturers in North America, AGCO, Case IH, New Holland, and John Deere, structure their service training for their technicians, components of service training and provided feedback about the advantages and disadvantages of web based and instructor led service training.

The first part of the study investigated the logistics of service training. Through this study I determined the number of technicians that attended facilitator based training, along with web based training specific to each brand. I also collected data related to the length, cost and location of the training and evaluated the information by comparing manufactures.

The second part of the study investigated the structure of training and provided insight on web based and instructor led training. I determined the average class size, along with materials and activities used to enhance the students experience during instructor led training. It also showed the advantages and disadvantages of web based and instructor led training, as viewed by service managers at the dealerships for AGCO, Case IH, New Holland and John Deere.

This information provided the training departments with feedback to improve and adapt service training to meet the needs of the service technicians at the dealership, which leads to satisfied customers that have problems resolved quickly due to a well trained service technician.

Need

As the agriculture industry continues to grow and technology continues to expand, the demand for training continues to increase. Agriculture equipment manufactures are looking to provide valuable training as efficiently and effectively as possible. This study provided information on how to efficiently and effectively meet the demands of service training by analyzing the structure and components of service training conducted by the different brands. It also provided feedback that can be used to improve training. Trained service technicians, lead to happy customers, profitable dealerships and companies.

Background

In order for dealerships to maintain and grow business they need to have a knowledgeable staff. Technicians can no longer just carry a toolbox with them on service calls, they need to carry their virtual toolbox, which includes a computer to diagnose and even solve the problem sometimes. As with all technology, it requires a basic understanding of the product and with the rapid adoption of technology AGCO, Case IH, New Holland and John Deere, are requiring that their dealers be certified to sell the brand of equipment. To be a certified dealer, means the dealer is able to support the products they sell. As part of their dealer certification, a certain amount of service training hours are required, along with other requirements such as sales or finance training. The requirement for dealer certification varies from brand to brand. This study provided information on the structure of training, along with providing suggestions for improvements.

CHAPTER TWO: LITERATURE REVIEW

As the methods of education are changing due to limited resources, distance learning courses play a significant role in filling in the gaps in facilitator based training. Distance learning courses have been shown to teach the same amount of information and have the same rate of student satisfaction as traditional face-to-face classrooms (Chang et al., 2008). A majority of administrators were also satisfied with the distance education programs offered (Hannum et al., 2009).

In the study “Comparing e-Learning Tools’ Success: The Case of Instructor-Student Interactive vs. Self-Paced Tools”, Hsieh and Cho (2011) examined the effectiveness of SP e-Learning tools versus ISI e-Learning tools. The SP e-Learning tools are computer or online learning programs and allow students to learn at their own pace, while ISI e-Learning tools provide additional information through a web based program as a supplement for classroom instruction. An example of an ISI e-Learning system would be Moodle. One hundred higher education students were randomly selected and surveyed. The results showed that ISI e-Learning tools were more effective because they provided immediate feedback and adjusted learning activities to meet students’ needs.

Quillerou published a paper titled “Increased Technology Provision and Learning: Giving more for Nothing?” (2011) that investigated the importance of offering students a variety of learning tools during an online course through a survey. The students’ needs and situations should be considered when the instructor is constructing an effective learning toolbox with useful tools, rather than a variety of tools students have to sort through.

The study conducted by Chang et al. (2008) studied the relationships between students' perceptions of the distance education course work and their satisfaction of the course when 103 students were surveyed in a Computer Science 103 class at Iowa State. Learner-centered teaching methods were shown to provide a higher student satisfaction rate than teacher centered methods and a positive attitude led to success in distance learning courses.

A study carried out by Hwang et al. entitled "A Synchronous Distance Discussion Procedure with Reinforcement Mechanism: Designed for Elementary Students to Achieve the Attending and Responding Stages of the Affective Domain Teaching Goals Within a Class Period" (2008) measured whether the affective goals (i.e. participation, attention) were met through a questionnaire using a five-point scale, that was given to sixty 6th graders. Management of discussion through reinforcement and instant interaction between the teachers was shown to increase participation from attending (passive participation) to responding (active participation) stages.

The book "Distance Learning in 21st Century Education" published by Howard et al. (2009) examined the use of communication technologies for discussions in distance learning course. The teachers monitored student activity and involvement, while comparing the amount learned and the students' satisfaction in a face-to-face classroom verses distance learning. The results showed there was no difference in the amount of learning or satisfaction of students between the courses.

The role of the instructor in a distance learning course is different than a traditional teacher. Throughout the course, facilitators are active and dedicated facilitators who are experts on the content. It is the teachers' roll to create collaborative learning experiences for the students, along with building teamwork among the students (Howard et al., 2009).

Collaborative learning experiences can be enhanced by synchronizing distance learning classes through video (Hwang el at., 2008). This increases the student to student and student to instructor interaction, which increases interaction with the course's content and the students (Chang et al., 2008). The research also shows immediate feedback is an important part of conducting a successful distance learning course (Hsieh et al., 2011).

Considering students' needs and providing them with the correct tools are important parts of planning collaborative learning experiences. Providing interesting content and teaching materials increase the attentiveness of students and willingness to join conversation (Hwang el at., 2008). Quillerou's (2011) study found that it is important to provide students with effective learning tools and materials, rather than a variety of materials students have to sort (Quillerou, 2011).

Instant interaction through synchronized video is also shown to improve the students' attitude about distance learning and increase their willingness to get involved in class activities. The results from "A Synchronous Distance Discussion Procedure with Reinforcement Mechanism: Designed for Elementary Students to Achieve the Attending and Responding Stages of the Affective Domain Teaching Goals Within a Class Period" (2008) indicated good management practices need to

be in place for students to get involved in activities. This includes reinforcement mechanisms and encouragement.

A successful distance learning course creates positive attitudes among students and leads to student success. Collaborative learning experiences and learner-centered lessons that allow for feedback immediately, through synchronized video, also contribute to the attitude and success of the students.

CHAPTER THREE: METHODOLOGY

Determining the Need

To effectively and efficiently provide service training, it is important to look at the structure of service training. For my research I decided to examine the structure of AGCO, Case IH, New Holland and John Deere's service training and compare them. All of these manufactures have a high demand for training, due to an emphasis on dealer certification. To meet the needs of the dealers, online courses are becoming very prevalent and collecting feedback on the advantages and disadvantages of web based and instructor led training, along with the structure would provide potential improvements for service training.

In order to collect this information there were two sections in my research study. First I sent out a survey to collect information about the structure of the training and then I interviewed service managers at dealerships about the classroom structure of the training, along with the benefits and disadvantages of instructor and web based training.

Population & Sample Size

Section 1: Survey

First I selected 13 states where crop production has a significant impact on the economy. The 13 states I selected were: Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas and Wisconsin. From there I randomly selected either two or three cities in each state, for a total of 30 cities. Then I went to each brands website and in the dealer locator I typed in the city and state, and found a dealership near the 30 cities

I selected. This allowed me to make sure the dealerships were in the same crop production area.

Section 2: Phone Interviews

I randomly select 10 dealerships for each brand, which were identified in section one. For each phone interview I talked to the service manager to ensure they were familiar with service training.

Both sections of this study were approved by the IBR. Participation in this study was completely voluntary and anonymous. During the first section dealership service manager provided informed consent by returning the survey completed. If they returned the survey blank they did not provide consent. For the second part of the study, I verbally explained the study and that it was voluntary and would be recorded for research purposes only. To confirm informed consent I had the service managers verbally agree to participate in the study.

Instrumentation

Section 1: Survey

A.) Survey Creation

I began developing the survey by talking to service training personnel and referencing other surveys that were created to evaluate service training. By combining the information I gained about writing survey questions through college courses and knowledge of service training in the equipment industry, along with the feedback from service training personnel and referencing other surveys I developed the survey found in Appendix 1.

The survey asked questions about the logistics of instructor based and online training courses, along with the price and location of the training. Throughout most of the survey I chose to use multiple choice questions because it would be easier to compare results and quantify the data.

I also included an introductory letter to explain the purpose of the study, which can be also be found in Appendix 1. The letter also included a section that stated that this was completely voluntary, anonymous survey, and by returning the survey filled out they were participating in the study. If they chose not to participate they were asked to return the blank survey in the return envelope. The survey and introduction letter were approved by the IBR.

B.) Surveying

I printed each manufactures survey on a different color paper to coordinate with the brand colors, which allowed me to identify which manufacture the data came from, without identify the dealership. This was important when keeping the survey anonymous. Below are the color combinations used.

AGCO – golden paper

New Holland – blue paper

Case IH – pink paper

John Deere – green paper

I sent each dealership a cover letter, survey, and self-addressed envelope. The self-addressed envelope label was printed in a color that associated with the brands as well. This allowed me to sort the envelops into brand piles. I sent out a total of 120 letters and surveys.

Section 2: Phone Interview

A.) Interview Questions

I also developed my phone interview questions by talking to service training personnel and referencing other surveys that were created to evaluate service training. By combining the information applied to create the survey, I was able to develop phone interview questions about the logistics of instructor and online training, along with material and activities that occur in the training and advantages and disadvantages of training. The interview introduction, questions and closing can be found in Appendix 2.

B.) Phone Interview

I chose 10 dealerships randomly from each brand to contact and interview. When I called the dealership I asked for the service manager, introduced myself and asked for their participation by following the script in Appendix 2. If they agreed to participate I proceeded with the questions and followed the script and recorded the answers. This way I was able to reference the interviews.

The most challenging part of this process was gaining participation because the service managers were busy with a customer or didn't have time to answer the questions in my interview. In order to combat this I asked if there was a better time to contact them and called back.

CHAPTER FOUR: RESULTS

SECTION 1

For the first part of the survey I randomly selected 30 dealerships from each brand. I received nine surveys back from Case IH, 19 from John Deere, 12 from AGCO and 9 from New Holland dealerships.

The first part of the survey asked questions related to the structure of internet based training. It is important to understand how many students attend each type of training to compare results. From the table below, a majority of Case IH and John Deere dealership have 5 to 10 technicians a year participate in internet training, while a majority of AGCO and New Holland dealers had less than five technicians participate in internet based training per year.

Table 1: Technicians Attending Internet Based Training Per Year

Technicians/Year	Case IH	Deere	AGCO	New Holland
<5	38%	16%	50%	56%
5-10	63%	63%	17%	44%
10-20	0%	16%	17%	0%
20-30	0%	5%	8%	0%
>30	0%	0%	8%	0%

The next question is related to training registration. Table 2 shows that a majority of all dealership's service managers are the most likely to register technicians for internet based training. This is also an important detail when compare internet and facilitator based training.

Table 2: Registration for Internet Based Training

Employee	Case IH	Deere	AGCO	New Holland
Service Manager	56%	63%	67%	89%
Parts Manager	11%	0%	8%	0%
Technician	11%	0%	0%	0%
Corporate	11%	0%	0%	0%
Human Resource	0%	5%	0%	0%
Training Coordinator	0%	16%	0%	0%
General Manager	0%	11%	8%	11%
IT Person	0%	5%	0%	0%
Office Manager	0%	0%	8%	0%

One of the references in my literature states that students who attend online courses have the same satisfaction rate as face-to-face classroom courses (Chang et al., 2008). To investigate this more in depth, it's important to understand how long the average length of the internet based courses are. The chart below shows that a

majority of Case IH training is less than two hours, while John Deere internet training is an average length of two to four hours. A majority of AGCO and New Holland internet based training was up to four hours. Overall, a majority of the online training for all the brands was equal to or less than four hours.

Table 3: Average Length of Internet Based Training

Hours	Case IH	Deere	AGCO	New Holland
<2	57%	5%	33%	44%
2-4	29%	74%	25%	33%
4-6	14%	0%	8%	11%
6-8	0%	11%	8%	11%
>8	0%	11%	25%	0%

The next set of questions in the survey focused on the logistics of instructor based service training. It is important to understand how many technicians attend service training on a yearly bases. Table 4 represents how many technicians from a dealership location attend service training per year. A majority of Case IH, AGCO and New Holland dealerships send less than five technicians to service training a year, while 58 percent of John Deere dealerships that replied indicated that they have five to 10 technicians a year attend service training.

Table 4: Technicians Attending Instructor Led Training Per Year

Technicians	Case IH	Deere	AGCO	New Holland
<5	67%	32%	50%	89%
5-10	33%	58%	33%	11%
10-20	0%	5%	0%	0%
20-30	0%	0%	8%	0%
>30	0%	0%	8%	0%

Registering for training is also another important aspect of the structure of training. This question was developed to evaluate who registers technicians for service training a majority of the time. The graph below shows that the most common employee to register technicians for training is the service manager, which is common for all the brands listed below.

Table 5: Registration for instructor based service training.

Employee	Case IH	Deere	AGCO	New Holland
Service Manager	67%	72%	67%	67%
Corporate	11%	0%	0%	0%
Human Resource	0%	6%	0%	0%
Training Coordinator	0%	11%	0%	0%
General Manager	22%	6%	25%	33%
IT Person	0%	6%	0%	0%
Office Manager	0%	0%	8%	0%

Table 6 shows the average length of instructor based training. The length varied significantly by brand. Instructor based training is also longer than internet based training because the unit of measurement increased from hours to days. A majority of surveys said that four days was the most common length for Case IH and New Holland, while 52 percent of reply's from John Deere dealership indicated two days was the most popular. Last but not least AGCO did not have a large majority in one section. A majority fell between two and three day instructor based training events.

Table 6: Average Length of Instructor Based Training

Days	Case IH	Deere	AGCO	New Holland
1	0%	13%	0%	7%
2	11%	52%	31%	14%
3	22%	13%	25%	21%
4	56%	17%	13%	43%
5	11%	4%	31%	14%

Table 7 shows the number of times each location was mentioned in the survey, when the service managers were asked to list the locations of service training. For Case IH the three most frequently mentioned locations were Racine, WI, Nevada, IA and Memphis, TN. The three most frequently mentioned locations for John Deere were Davenport, IA, Columbus, OH and Eagan, MN. Hesston, KA and Iowa were the two locations that were most frequently mentioned for AGCO, while Ames, IA and Racine, WI were frequently mentioned for New Holland. Overall this shows that there is not just one centralized location for service training.

Table 7: Locations of Service Training

Case IH		John Deere		AGCO		New Holland	
Location	Quantity	Location	Quantity	Location	Quantity	Location	Quantity
Racine, WI	6	Davenport, IA	10	Hesston, KS	5	Ames, IA	5
Memphis, TN	3	Eagan, MN	6	Iowa	3	Racine, WI	4
Nevada, IA	4	Columbus, OH	7	Jackson, MN	2	Lima, OH	2
Lima, OH	2	Wichita, KS	2	Waco, TX	2	Champagne, IL	2
Watertown, SD	1	Orlando, FL	2	Moorhead, MN	1	Madison, WI	1
Pendergrass, GA	1	Dallas, TX	1				
		Regina, Saskatoon	1				

The last set of questions in the survey relates to the cost of training and who covers the cost of training. The answers to these questions will provide insight on the structure of the service training within each brand.

The graph below explains when service technicians participate in internet based course. The results show that all of AGCO and New Holland dealerships surveyed have their technicians participate in internet based training during paid work hours. A majority of dealerships surveyed with Case IH and John Deere also have their technicians participate in internet based training during paid work hours.

Table 8: When Technicians Participate in Online base Training

Work Hours	Case IH	Deere	AGCO	New Holland
Paid	89%	84%	100%	100%
Unpaid	11%	0%	0%	0%
Both	0%	16%	0%	0%

The next question on the survey examined who covers the cost of internet based training for the service technicians. This is an important question because it could affect the service technician’s attitude toward training. Table 8 reveals that the dealers cover the cost of training 100 percent of the time for all the manufactures.

Table 8: Who pays for internet based training?

	Case IH	Deere	AGCO	New Holland
Dealership	100%	100%	100%	100%
Other	0%	0%	0%	0%

The survey also asked what the cost of internet based training. Due to the fact that the answers varied so much I took the average of all the costs listed for each brand and the average is reported in Table 9. From the survey, John Deere had the lowest internet based training class for an average of \$101 and Case IH had the largest fee for an internet based training course at an average of \$250.

Table 9: Average Cost of Internet Based Training Class

	Case IH	Deere	AGCO	New Holland
Cost	\$250	\$101	\$163	\$225

Table 10 shows that dealerships also pay for the instructor based training. From the results I collected in Table 10 and Table 8 I can conclude that dealerships pay for both types of service training.

Table 10: Who pays for instructor based training?

	Case IH	Deere	AGCO	New Holland
Dealership	100%	100%	100%	100%
Other	0%	0%	0%	0%

The next question on the survey asked the average cost of instructor based service training. Once again, I took an average of the numbers I received, which are reported in Table 11. The results show Case IH also had the highest average cost for instructor based training at \$593 and John Deere has lowest average at \$352 for an instructor based service training course.

Table 11: Average Cost of Instructor Based Training Course

	Case IH	Deere	AGCO	New Holland
Cost	\$593	\$352	\$532	\$375

The last question on the survey asked if there are any additional costs beyond the cost of service training. A majority of dealerships indicated that there were additional costs associated with technicians participating in service training. One hundred percent of the Case IH dealerships indicated that there were additional cost in Table 12.

Table 12: Additional Costs not Covered by the training cost

	Case IH	Deere	AGCO	New Holland
Yes	100%	67%	92%	75%
No	0%	33%	8%	25%

If the dealerships indicated that there were additional costs, the survey asked them to explain. Table 13, below, shows the items that were mentioned as additional costs. The number indicates how many surveys it was mentioned on a survey. Travel and lodging were the two most mentioned additional cost of service training, amongst all the dealerships.

Table 13: Additional Cost

	Case IH	Deere	AGCO	New Holland
Travel	8	10	9	5
Lodging	9	8	7	2
Meals	7	6	5	2
Labor	0	3	4	2

From section one I am able to make many conclusions about the structure of service training. The results show that dealerships, on average, don't send more than 10 technicians at a dealership location to service training per year, whether it be web or instructor based. A majority of the time the service manager at the dealership usually registers the service technicians for service training, but not the service technician themselves. As a trend seen among all the brands, web based training doesn't last longer than four hours and instructor based training varies from two to four days in length, on average. Overall, there weren't any consistent prices for web and instructors based course based on the responses received, but the results indicated that the dealerships pay for the service training.

SECTION 2

For the second part of the study I randomly selected 10 dealerships from each brand that were sent a survey in section one, for a total of 40 dealerships. When I called the dealerships and asked if the service manager was available I was able to interview three service managers for each brand, for a total of 12 service managers. During the phone interview I asked questions related to the structure of facilitator and web based training and comparing the advantages and disadvantages of web based training. Below I have summarized the answers to the phone interview questions.

The first set of questions in the phone interview was related to the structure of facilitator based training. Part of the structure is registering the technicians for service training. In Question 1, the service manager appeared in all of the brands except for John Deere. Other dealership employees were identified, as some who registers the technician for training, but the technician themselves did not appear on any list.

QUESTION 1: Registration for Facilitator Based Training

1. Who is allowed to register for the facilitator based service training?

AGCO

- Service manager
- General manager

Case IH

- Dealership
- Service manager

John Deere

- Training Coordinator
- Dealership
- IT Specialist

New Holland

- Service manager

Another important part of understanding training is knowing what type of training is offered. Electrical and hydraulic training was mentioned in responses from service managers at AGCO and John Deere. The service managers from the other two manufactures had a common response and identified that the brand offers online and classroom training, as the results in Question 2 show.

QUESTION 2: Type of Facilitator Based Training Offered

AGCO

- Specialized, electrical, hydraulic at localized training centers

Case IH

- Specific models
- Classroom training & online training

John Deere

- Company based
- Basic electrical, hydraulic, service advisor, vehicle Sales, parts & service

New Holland

- Classroom or Online and come to the dealership

Below, Question 3, shows the topics that are covered in facilitator based training. Model year equipment information is a common theme that appears in all the responses from the brands. Once again electric and hydraulic appear as topics covered in facilitator based training. The other responses are related to maintenance and diagnosing problems with vehicles.

QUESTION 3: Topics Covered in Facilitator Based Training

AGCO

- Equipment specifics

Case IH

- Model year equipment information
- Electric, hydraulic

John Deere

- Maintenance,
- Diagnosing problems
- Computer based service
- Electrical
- Hydraulic
- Machine type

New Holland

- Model year

Understanding the types of materials used is another important component in understanding the structure of facilitator based training. The response to Question 4 give insight to the type of materials used for facilitator based service training. Computers, hands on activities and a workbook or manual were mentioned in the responses from all the brands, which shows that these are commonly used in facilitator based training. Equipment was also mentioned in responses from AGCO and John Deere service managers.

QUESTION 4: Materials used in Facilitator Based Training

AGCO

- Manuals (topics covered in the class)
- Computer
- Hands on
- Equipment

John Deere

- Equipment
- Problem solving
- Laptop required for class
- Hands on or classroom
- Computer based training

Case IH

- Computer
- Hands on
- Training manual

New Holland

- Work book
- Computers
- Hands on

The next question was designed to discover what type of activities occurred during facilitator based training. Below, in Question 5, CASE IH and AGCO service managers commonly reported a combination of hands on and classroom instruction. Incorporating equipment into an activity within training was also mentioned by all the dealerships expect Case IH. A John Deere service manager also said the dealership prints the booklets before they attend service training.

QUESTION 5: Activities in Facilitator Based Training

AGCO

- Classroom and hands on (equipment)
- Tear down and rebuild equipment

John Deere

- Hands activity
- Dealership prints booklets before training

Case IH

- Classroom
- Hands on

New Holland

- Classroom
- Equipment

The next two questions go hand and hand. Often times if a pre-test is taken for a course, there will also be a post test. Below in Questions 6 and 7 it shows that Case IH and New Holland require both a pre-test and post test for the facilitator based training. The responses from AGCO service managers indicate that pre and post test are not always required, while John Deere requires a pre-test and sometimes a post test.

QUESTION 6: Pre-test Required for Facilitator Based Training

AGCO

- Just online courses
- Yes on occasion

Case IH

- yes

John Deere

- Yes

New Holland

- Yes

QUESTION 7: Post test required for Facilitator Based Training

AGCO

- Just online courses
- Yes on occasion

Case IH

- Yes

John Deere

- Test on the computer
- Yes
- Some will

New Holland

- Yes

The previous question established that most of the facilitator based service training courses require a pre and post test. The next questions, investigates if a specific score is required on the post test to pass the class. By looking at the results in Question 8, I am able to conclude that technicians from Case IH, John Deere and New Holland must have a minimum of 80 percent to pass the course and receive credit. AGCO results show it varies by course and manufacture.

QUESTION 8: Passing Score Required to Pass the Course

AGCO

- Yes; varies by class & manufacture

Case IH

- yes, 80 percent or better

John Deere

- Yes, minimum of 80 percent

New Holland

- Yes, at least 80 percent to pass

The next set of questions in the phone interview is related to the logistics of training. Attendance is important at training and to gain attendance, usually a reminder or notification is given.

The first question shows that a majority of notifications are available to the dealership via e-mail or web based account. Question 9, also shows that the notification is given to the dealership and then passed onto the technician.

QUESTION 9: Notification for Facilitator Based Training

AGCO

- E-mail from a company service rep
- Through the dealer portal

Case IH

- Dealership notifies the technician
- E-mail reminder

John Deere

- Print of a sheet, hand out individually
- E-mail from the university notifies the dealership

New Holland

- E-mail
- Web based account

The following question asks about the availability of facilitator based service training. Question 10 shows that all the dealerships have training all year around. Some of the course may only be offered once or twice a year, depending on the equipment for Case IH service technicians.

QUESTION 10: Availability of Facilitator Based Training

AGCO

- Year around

Case IH

- Once or twice a year depending on equipment
- Throughout the year, depends on availability

John Deere

- Year round
- 4 training sessions per year

New Holland

- Year long

Understanding the length of facilitator based training is important when evaluating what type of activities occur in training. This question spurred many different answers from the dealerships. The average length of facilitator based training ranges from two to five days, with the average being at 4 days.

QUESTION 11: Length of Facilitator Based Training

AGCO

- 2-4 days
- 4 days

Case IH

- 2 or 4 days
- 4 days

John Deere

- 3 days
- 4 days
- 4 hours to 3 days

New Holland

- 3-4 days
- 4-5 day

When designing and planning training it is important to think about the facilities and the class size. Service training wants to be as efficient and effective as possible. Question 12, show that the average class for facilitator based training is anywhere from 10-20 students.

QUESTION 12: Students in a Service Training Course

AGCO

- 20
- 10-12

John Deere

- 20 students
- 8-12

Case IH

- 10-12
- 15-20
- 10-15

New Holland

- 15-20
- 20

The following set of questions relates service training to dealer certification. In order for dealerships to sell certain products they must meet the dealer certification for the product. This ensures they are able to service the products they sell. The question below shows that service training plays a major role in dealer and technician certification.

Overall, all the brands have requirements for dealer certification. The requirements for each brand vary, according to the responses from the phone interviews, as seen in Question 13. The results below show that Case IH and New Holland make the dealership personnel take a test and the parts they do not score well on, they have to attend service training related to those topics. When they pass the service training courses related to the topics they didn't score well on, their overall test score increases, which leads to an increase in parts discounts for the dealership.

John Deere requires their technicians to achieve a certain number of training credits. The amount of credits a training course is worth depends on the content and length of training. I also found it interesting that John Deere has two levels of technicians, master technicians and master advanced technicians. The master advanced technicians require more credits of training. AGCO uses a points system and requires specific training hours depending on the dealership employee's position. Overall, each brand does something a little different, but requires service training for dealer certification.

QUESTION 13: Requirements for Dealer Certification

AGCO

- Yes, point system
- Require certain training hours for particular dealership employees

Case IH

- Certain hours per person (ex: sales, parts & service)
- On going training program
 - o Take an initial test, then improve score by attending training
 - o Parts discount related to amount of training

John Deere

- Maintain 25 credits per year/technician
- 20 credits per year/technician
- Two levels: Master Technician & Master Advanced Technician
 - o Difference in the amount of training credits

New Holland

- Certain hours per technician
- Yes, course required if you don't score well on an overall test

In the previous question I discovered that service training plays a major role in dealer certification. Question 14 investigates who sets the dealer certification requirement. From the responses I can conclude that the manufacturers set the dealer certification requirements, which also explains the variance in answers in Question 13.

QUESTION 14: Who sets dealer certification requirements?

AGCO

- manufacture

Case IH

- Brand

John Deere

- Brand

New Holland

- Brand

Even though service training is required for dealerships I wanted to see if dealerships saw any additional benefits of sending employees to service training. Overall, all the dealerships said that they saw additional benefits to sending employees to service training beyond dealer certification in Question 15. One of the AGCO service managers said it was important to attend training to keep up with the new products. Another John Deere service manager commented that training provides service technicians a better understanding of the equipment and business.

QUESTION 15: Benefits of Service Training

AGCO
 - yes
 - Most definitely need people attending training to keep up

Case IH
 - Yes

John Deere
 - Hands on equals learning faster
 - Learn the function and procedure
 - Better understanding of the equipment and business

New Holland
 - Yes, review material
 - No

The last set of questions in the survey was based on web based training. The results from this section showed that overall, manufactures are using internet courses to supplement facilitator based training, not replace it. There were many positive comments about web based training and providing the technicians with another opportunity for service training, without the additional travel expenses.

The first part of Question 16 asked if web based courses are available to technicians. All the responses indicated that all the brands offer web based courses. The next part of the question asked if they are replacing facilitator based training with web based training. AGCO, Case IH and New Holland responses show that web based training is not replacing facilitator based training; it is in addition to facilitator based training.

The results from John Deere show that they are moving some courses to strictly web based courses. I also found it interesting that they offer two types of web based courses. One of the web based courses has a facilitator running the course, while the other type of training course the technician completes at a computer without interaction with a facilitator.

QUESTION 16: Availability of Web based Course & Replacing Facilitator Based Training

AGCO

- yes, Available all the time, online university
- Yes
 - a.) no

Case IH

- Yes
 - a.) no, in addition to facilitator training

New Holland

- In addition
- Yes, in addition

John Deere

- Yes, some are only web based
- Yes, started to replace facilitator based
- Two types of training
 - o Instructor with other people on a scheduled date
 - o Computer and take a test to pass, no instructor

Since web based training is becoming popular, it is important to understand what topics are covered in web based training. AGCO and New Holland indicated in Question 17 that the topics covered in web based training are also offered for instructor led courses. I found it interesting that AGCO requires technicians to pass a prerequisite web based course before signing up for instructor led training sometimes. The other two brands responses show that entry level courses along with general product information and updates are the primary topics covered in web based service training courses.

QUESTION 17: Topics Covered in Web based Training

AGCO

- same as facilitator based
- some classes require a prerequisite web based class that technicians have to pass to take the instructor led training

Case IH

- Customer relations
- Introduction course

- General product introduction

John Deere

- Basic courses
- AMS updates on products

New Holland

- Everything that is offered in facilitator training
- Introduction material

When asked about the advantages of web based courses, many of the service managers had positive comments. The lower cost, because the dealership doesn't have any travel cost, along with the convenience of web based courses were mentioned by all the brands. At least one of the service managers from each brand mentioned that it was a good way to get familiar with a topic or product.

QUESTION 18: Advantages of Web based Courses

AGCO

- Cheaper
- Supplemental learning

Case IH

- Familiar with the topic
- No travel for certification
- Cost
- Convenience

John Deere

- Not away from the dealership
- No travel, lodging or additional cost
- Nice way to learn functions and serviceability of equipment & new products

New Holland

- Convenience
- Good introduction to products

The question below asks if there are any disadvantages of web based courses. In Question 19 a common theme appeared. All brands said that web based courses lacked hands on experience. I also found it interesting that a couple of the service managers from AGCO mentioned that the technicians are not committed to web based service training, which may leads to some of the Case IH service managers point that there is a lack of in depth understanding from a web based training course. One of the John Deere service managers also mentioned that with web based courses there isn't interaction with instructors, which means there isn't time for questions.

QUESTION 19: Disadvantages of Web based Courses

AGCO

- no hands on
- technicians are not committed
- preliminary information

Case IH

- No hands on
- Lack of in depth understanding
- Don't have to learn anything to pass, listen to pass it

John Deere

- No hands on
- No interaction with an instructor
 - o No time for questions

New Holland

- Basic information
- No Hands on

The last question in the survey asked if there are any improvements that can be made to web based training. When I was interviewing the service managers, many of them couldn't think of any improvements, which is why there are not many responses. Below in Question 20, Case IH and New Holland service managers

mentioned the availability of training. One of the John Deere service managers also mentioned access to the internet. If the dealership has a weak internet connection, it takes a long time to complete the web based course. One of the AGCO managers also said that lowering the cost for web based training was an improvement that can be made.

QUESTION 20: Improvements to Web based Training

AGCO

- Lower cost

Case IH

- Better descriptive
- More availability

John Deere

- Access to the internet
- Slow internet causes lag time

New Holland

- More availability

As the need for service training continues to increase, because a certain amount of hours are required by the brands to be dealer certified, web based learning course are being integrated with facilitator based training. The results from section two also show that similar materials and topics are covered in facilitator and web based service training. Computers, manuals or workbooks, along with hands on activities are common across all the brands responses. The interviews also showed pre and post tests are often used to assess the technician's knowledge growth. I can also determine that facilitator based training in anywhere from two to four days and the classes range from 10 to 20 students. Web based training is often used in conjunction with facilitator based service training according to the results, also. When examining the interview answers I'm able to conclude that web based courses provide dealerships with less cost and more convenience, but lack the hands on activities.

V: CHAPTER FIVE: DISCUSSION

After examining the results carefully I found that the structure of service training is very similar among AGCO, Case IH, John Deere and New Holland. There were also similarities in materials and activities used in facilitator based training, along with advantages and disadvantages of web based training courses.

Many of the training logistics were similar between all the service training programs. On average, dealerships do not have more than 10 technicians participate in service training per year. I also found it very interesting that a majority of the time the service manager or another designated dealership employee registers the technician for service training, not the technician themselves. The results also show that all the brands are offering service training throughout the year, even though some courses may only be offered during a specific time of the year.

The results from my research also show that similar materials and strategies are used throughout all the service training programs. During service training a manual or workbook is provided to the students as a reference. The interviews also indicated that computers and hands on activities were used in service training. Overall this shows that service trainers' use a variety of learner centered teaching strategies by providing the students with time to apply the knowledge they have learned in class through hands on activities. The manuals and workbooks also provide a resource for technicians to reference when they are problem-solving out in the field. Learner-centered teaching methods were shown to provide higher student satisfaction rate in a study done by Chang et al. (2008).

The feedback provided on the web based training was also similar from all the service managers' interviews. The major advantages of web based training were the convenience of training and no additional travel cost. When dealerships send their technicians to instructor based training they encounter additional cost beyond the training cost, according to the survey results. The common disadvantage of web based training was the lack of hands on activities and an in depth understanding of the material.

I have also realized that there are some items that vary by brand due to the preference and culture of the company. For example, the length of internet based training ranged from two to four hours, along with the cost. One of the service managers from John Deere also indicated that there are two types of internet based service training offered. The first type involves a live instructor and the participants call in, while the other type involves a computer and the technician. The length of facilitator based training also varied from two to four days, along with price. There are many variables, such as content, expenses and availability of trainers that need to be examined when looking at the price and length of service training.

When I was interviewing a service manager about the disadvantages of web based training he indicated that there was a lack of understanding and another service manager mentioned the inability to ask questions and receive feedback. John Deere offers a web based course at a scheduled time with an instructor. Research shows that ISI e-Learning tools are more effective because they provide immediate feedback and can adjust learning activities (Hsieh and Cho).

Another study showed that collaborative learning experiences can be enhanced through synchronized video (Hwang et al., 2008). Synchronized video's increase student to student interaction, along with student to instructor interactions, which increases interaction with the course content (Chang et al., 2008). From the phone interviews the managers had many positive comments about web based training. To improve on some of the disadvantages found in the research, I believe moving toward a synchronized video webinar may be a way to eliminate the disadvantages discovered in this study.

After reviewing the data there are many topics that can be further discussed and researched. The results of this study show the basic structure and service managers thoughts on service training. To gain a different perspective on service training, interviewing service trainers from the different manufactures would provide additional information about service training. The interview could focus on teaching techniques used in training, along with their thoughts on the overall effectiveness and evolution of service training.

Performance reviews from technicians, who have recently participated in service training, is another subject that could be investigated further. Information about the knowledge of the instructor, along with course content and materials used in class could be evaluated during this performance. This study would directly evaluate the effectiveness of service training.

Lastly, as training demands increase the amount of web based courses utilized will increase. My research showed that John Deere offers two types of web

based training. Another studied could be done to compare the two types of web based courses, along with the content and structure of the web based course.

Overall, the service training departments at AGCO, Case IH, John Deere and New Holland will continue to grow and expand as technology is changing rapidly and the emphasis on service training requirements for dealer certification increases.

VI: CHAPTER SIX: CONCLUSION

As the need for service training continues to grow with technology evolving and manufactures emphasizing service training for dealer certification I believe the industry will continue to provide a combination of internet and facilitator based service training courses, with an increase in internet based training courses, to be efficient and effective. When adding internet based training courses it is important to keep a learner center mindset and provide an informational course that provides the technician with feedback and hands on activities. From my research, service managers indicated that service training provides the technicians with the experience and knowledge they need to be successful, along with meeting the requirements for dealer certification.

Overall, this study shows that the structure of service training is very similar among the manufactures in the study. The service manager usually registers the technician for service training and the courses and prices can vary in length depending on the material.

VII: CHAPTER SEVEN: REFERENCES

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APPENDIX A

Introduction Letter and Dealer Survey

December 12, 2011

Dear Service Manager,

My name is Emily Treu and I am a student at University of Wisconsin River Falls earning my masters degree in agricultural education. As part of my program I am conducting research about continuing education for technicians at equipment dealerships.

I am asking you to participate by completing the following questionnaire. Please do not write your name or dealership on the questionnaire; this study is meant to be anonymous. It is completely voluntary; if you are willing to participate, please answer the questions to the best of your ability and send the questionnaire back in the self-addressed envelope included as soon as possible. If you choose not to participate, please return the questionnaire to Emily Treu in the self-addressed envelope enclosed.

If you have concerns about how you are treated in this study, please contact: Molly Van Wagner, Interim Director of Grants and Research, 101 North Hall, UW-RF, 715/425-3195.

This project has been approved by the UW-River Falls Institutional Research board for the Protection of Human Subjects, protocol #H2011-W126.

Thank you for taking the time to consider my questionnaire.

Sincerely,

Emily Treu
1047 E Cascade
River Falls, WI 54022
920.410.3901

Please do not include your name or dealership anywhere on this survey. Thank you!

Directions: Please answer the following questions by circling the answer or filling in the blank when requested that best applies to your dealership location.

Internet Based Training Questions

1.) How many technicians from the dealership location complete Internet based trainings per year?

Less than 5 5-10 10-20 20-30 More than 30

2.) Who registers the technicians for Internet based service training?

Service Manager Technician Other (Please Explain)_____

3.) How many hours does it take the technician to complete the Internet based training?

Less than 2 hours 2-4 hours 4-6 hours 6-8 hours More than 8 hours

Instructor Based Training Questions

1.) How many technicians from the dealership location attend instructor based service training per year?

Less than 5 5-10 10-15 15-20 20-30 More than 30

2.) Who registers the technicians for instructor based service training?

Service Manager Technician Other (Please Explain)_____

3.) How many days is the instructor based service training?

1 day 2 days 3 days 4 days 5 days More than 5 days

4.) List the locations of instructor based training that the technician(s) attend.

General Training Questions

1.) When do technicians complete Internet based training?

During Paid Work Hours After Paid Work Hours

****Questions continued on the back****

Please do not include your name or dealership anywhere on this survey. Thank you!

Please do not include your name or dealership anywhere on this survey. Thank you!

2.) Who pays for the Internet based training?

Dealerships Brand Other (Please Explain) _____

3.) How much does Internet based training cost? _____

4.) Who pays for the instructor based training?

Dealership Brand Other (Please Explain) _____

5.) How much does instructor based training cost? _____

6.) Are there any additional costs of training not covered in the training cost?

Yes No

If you answered yes, please explain: _____

Thank you for taking the time to complete this survey!

Please do not include your name or dealership anywhere on this survey. Thank you!

APPENDIX B

Interview Questions for the Service Manager

Good morning, my name is Emily Treu. I'm a student at the University of Wisconsin River Falls earning my masters degree in agricultural education. As part of my program I am conducting research about continuing education for technicians at equipment dealerships.

Are you willing to take 15 minutes of your time to answer some questions I have related to service training? If now is not a good time is there a better time to call for an interview?

Please do not say your name or dealership throughout this interview. This study is meant to be anonymous. I am recording this conversation for research purposes only, and will not be available to anyone else.

It is completely voluntary; if you are willing to participate, please acknowledge you understand the conditions of this research study by saying, "I agree to the conditions of this study".

Thank you for participating.

The first set of questions is related to the facilitator based service training the technicians attend.

- 1.) Who is allowed to register for the facilitator based service training?
- 2.) What type of facilitator based training is offered?
- 3.) What topics are covered in training?
- 4.) What materials are used in training?
- 5.) What types of activities are included in the training? (hands on, ect.)
- 6.) Are technicians required to take a pre-test during training?
- 7.) Are technicians required to take a post test during training?
- 8.) Are the technicians required to achieve a certain score to pass the training?
 - a. If yes, what score indicates a passing score?

The next set of questions are related to the logistics of facilitator based training

- 9.) How are students notified of training?
- 10.) How often is training offered?
- 11.) How many days is the training?
- 12.) On average, how many technicians are in each class?

The 3rd set of questions are related to Dealer Certification

- 13.) What are the requirements for dealer certification?
- 14.) Who sets the requirements for dealership certification?
- 15.) Are there any benefits of sending dealership employees to service training?

The last set of questions are related to web based service training courses

- 16.) Are web based course available for technicians?
 - b. Can a web based course replace facilitator training?
- 17.) What topics are offered in web based learning courses?
- 18.) What are the advantages of web based courses?
- 19.) What are the disadvantages of web based courses?
- 20.) What can be done to improve web based courses?

Thank you for participating in this interview. I appreciate your time!

Once again, I'd like to remind you that this study is meant to be anonymous. I am recording this conversation for research purposes only, and will not be available to anyone else. This project as been approved by the UW-River Falls Institutional Research board for the Protection of Human Subjects, protocol H2012-W001. If you have concerns about how you are treated in this study, please contact Molly Van Wagner, Interim Director of Grants and Research, 101 North Hall, UW-RF, 715/425-3195.

Have a great day!