A Comparison of Outcomes of Between Traditional Classroom and Distance Learning Courses at the Georgia Public Safety Training Center.

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A COMPARISON OF OUTCOMES OF BETWEEN TRADITIONAL CERTIFICATION

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Abstract

The Training Center has begun utilizing distance learning as a delivery option. The problem is that the Georgia Public Safety Center (GPSTC) cannot gauge the effectiveness of these distance learning courses within their course offerings. The purpose of this research is to determine the effectiveness of distance learning to justify additional distance learning courses being offered.

The research questions were (1) How do students perform on end of course tests in the distance learning course as compared to classroom version of the courses; (2) How many students complete the courses in the online delivery method as compared to the classroom versions? (3) What is the level of student satisfaction with online courses as compared to traditional course offerings? (4) How many students take online classes for convenience versus preferred learning style? (5) What are the cost factors for traditional delivery compared to the online versions? A descriptive research method was conducted including an audit of course files and student surveys. Test scores were compared and results revealed that the distance learning option and traditional option had very similar outcomes. A survey determined the distance learning students were satisfied with their learning experience. The cost to conduct the distance learning course was much lower than the traditional course. Recommendations were made to research why the distance learning course had a higher student completion rate. An additional recommendation was made to evaluate transforming the current online platform utilized into a more effective tool.
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INTRODUCTION

The problem is that the Georgia Public Safety Center (GPSTC) cannot evaluate the current effectiveness of distance learning courses being offered. The purpose of this research is to determine the effectiveness of distance learning compared to traditional class settings. The mission statement of the Georgia Public Safety Training Center is “We are here to foster professionalism, competency, and safety within the ranks of the Georgia Public Safety Community by developing, delivering, facilitating, and supporting training which exceeds our customers’ needs.” (Georgia Public Safety Training Center, n.d.) The GPSTC has entered into the world of distance learning in attempts to meet the needs of their customers. This paper will utilize the descriptive method of research to determine whether or not the GPSTC online courses are effective in their outcomes. The following research questions will be answered through this research:

1. How do students perform on end-of- course tests in the online courses as compared to classroom version of the courses?

2. How many students complete the courses in the online delivery method as compared to the classroom versions?

3. What is the degree of student satisfaction with the online courses as compared to the classroom versions of Acting Officer in Charge?

4. How many students take online classes out of convenience versus preferred learning style??

5. What are the course cost comparisons for the delivery of the On Campus Acting Officer in Charge as compared to the online version?
Sources utilized to conduct this applied research paper will include journals, books, online publications, and dissertations. Data will be obtained through an online survey of former students of the GPSTC Acting Officer in Charge and Acting Officer in Charge Online. Further data will be gathered by querying course files of these two courses given between 2008 and 2011.

**Background and Significance**

The Georgia Fire Academy is a division of the Georgia Public Safety Training Center (GPSTC). It is the state fire training agency which services career, volunteer, and combination departments in the entire state of Georgia. The Georgia Fire Academy breaks their training programs into the following categories: basic training, live fire, fire prevention and fire safety education, technical rescue, hazardous materials, fire officer, and National Incident Management training. The Fire Academy currently has a full time staff of 11 instructors with five staff support personnel.

The Georgia Fire Academy offered 325 courses in fiscal year 2010 which reached 6,793 students. These courses equated to 150,213 contact hours during that fiscal year. These courses were conducted through a variety of methods. The campus for the Georgia Fire Academy is located in Forsyth, Georgia which is where the majority of these courses are offered. Some courses are also offered regionally throughout the state and some are conducted by Fire Departments themselves for their members. There were a total of 18 courses conducted in fiscal year 2010 by departments for their personnel.

One of the biggest challenges the Georgia Fire Academy faced was how to offer courses to an entire state from one central location. Several career departments could not allow their firefighters leave time for long periods to take classes, or if they did allow leave time, it was only
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sufficient to allow firefighters to take one single class per year. The economic downturn which began 2008 further impacted Georgia Fire Departments’ abilities to send firefighters to classes. The Fire Academy started experiencing drops in attendance and had to cancel numerous courses due to insufficient student participation.

The decrease in student numbers drew attention to the Georgia Fire Academy from the State Legislature and the Governor which resulted in budget cuts. Lower attendance created a question of whether or not there was the need for a State Training Academy for the fire service. The entire Technical Rescue program lost funding due to state budget cuts. The Governor proposed cutting the entire Fire Officer Development course from the Fire Academy as well. The cut would have eliminated the courses Georgia Firefighters needed to obtain Fire Officer I through IV as well as three staff members. The Georgia Fire Chief’s Association and Georgia Firefighters Association launched a statewide campaign to stop the Fire Officer Program cuts. However, Technical Rescue was not able to be saved. Staffing levels were impacted through attrition and as a result, the Fire Academy which had 23 staff instructors in 2007 currently has 11 staff members. In addition to the drops in staff, all state funding to pay for adjunct instructors was cut. The cut in adjunct money placed an even harder burden on the academy to keep up its course load and justify its existence to the Legislatures.

Distance learning is a concept which would allow the Fire Academy to reach firefighters in all corners of the state with training classes and fewer staff members. Distance learning would also allow for firefighters to take classes without impacting local staffing levels. The hope is that taking the training to the firefighters would help the Fire Academy continue to meet the needs of the Georgia Fire Service, resulting in increased attendance numbers which would help prevent further budget cuts for the Fire Academy.
In 2009, the GPSTC held its first hybrid distance learning course through the Georgia Fire Academy. The class was *Acting Officer in Charge Online*. This course was derived from an existing course that is a part of the Fire Officer I series offered through a traditional classroom setting. The course is set up with six power point modules and voice over lectures published online. The students are required to complete at least one module per week which includes a quiz with each module. In addition, the students must complete a weekly summary of each module and email that summary to the course coordinator. To compensate for the loss of classroom discussions the students are required to attend one chat session during the six-week course. The students must present one discussion topic based on the modules during the chat session. The final component of the course is held when the students come to the GPSTC and participate in a practical application session on tactics and strategies before taking a final test for the class.

There have been a total of fifteen offerings of this course since its 2008 inception with a total of 136 students. The GPSTC has since developed other online courses in module format to meet continuing education requirements for both police and fire personnel in Georgia. The GPTC has been using an adobe flash player system for its online course. This platform is very limited and does not have the same tools that many other online platforms offer. The GPSC has acquired Blackboard in 2011 and will convert all of its full online courses into that platform this year. Blackboard has several tools that can be utilized beyond what the adobe system provided such as bulletin board posts, larger chat capabilities, and virtual classrooms.

Distance learning is a possible solution for reaching more firefighters but we do not know at this point if it is an effective learning alternative. Distance learning does provide convenience and makes it possible for firefighters to enroll in classes they would not have been able to. The question has yet to be answered if learning is occurring or if certificates are merely being
provided for courses. The purpose of the Fire Academy is to train the Fire Service of Georgia and while it does need to increase its ability to reach a larger number of firefighters, it does not want to compromise learning as a result of those efforts.

The research conducted in this ARP could create the possibility of expanding the distance learning efforts of the Georgia Fire Academy. The existence of the Georgia Fire Academy is dependent on it being able to find new ways to effectively train the Georgia Fire Service. The distance learning concept was initiated within the Fire Officer series but could be expanded into every program within the organization-- even in the Georgia Basic Firefighter Course, which is the mandated entry level training for firefighters.

The major goal of the Executive Development (ED) R123, course is to focus the attention of EFOs as leaders on transforming fire and emergency services to reflect the diversity of the fire communities. (National Fire Academy [NFA], 2010) The Georgia Fire Academy offers training throughout the state of Georgia to build a more diverse core of fire officers. The Georgia Fire Service identified in 2007 that a large percentage of its key leaders will be retiring in the next five to seven years and the need to train the new leaders was paramount to the protection of the citizens of Georgia and leadership of its fire service. Effective Distance learning will meet the goal of the USFA by improving the Fire and Emergency Services’ professional status.(http://www.usfa.dhs.gov/about/strategic)

**LITERATURE REVIEW**

The purpose of this literature review is to examine and summarize existing research that has been conducted on the effectiveness of distance learning as compared to traditional learning. The research was focused on adult learners in both the college level and also in on-the-job technical type of training usage of distance learning. The literature review also reviews the
delivery methods of the distance learning courses to determine if they are strictly an online self-paced course, a cohort, and if there is student interaction. The review will also examine the motivations of why students are taking a distance learning course versus the traditional in-class setting.

Current economic trends have created a higher need for alternative course delivery methods. Distance learning solves several logistical problems of sending people to training such as overtime and fuel costs. (Goodwin, 2010) In a survey conducted by RFG Research, it was found in a survey of 400 Emergency Medical Service providers that 44% reported a savings of more than 500 overtime hours as a result of utilizing distance learning. The same survey found that larger departments have reported that distance learning saved them as much as 10,000 overtime hours.(Goodwin, 2010) However, cost cannot be the sole purpose to implement a distance learning course. The ability to provide cost effective training is a priority for any public safety agency.

Distance learning as a whole is becoming a cost effective method for people to gain education and training. In 2009 it was estimated by the Distance Learning and Training Council that there is an estimated 8 million people currently engaged in some sort of distance learning program. (McCrea, 2009) Trends show a 25 percent increase in student participating in distance learning programs each year. It is estimated that in the private sector, distance learning provides a 20 to 50 percent cost savings as compared to traditional deliveries. (McCrea, 2009)

The question as to whether distance learning is truly effective or convenient and a cost savings tool is still yet to be answered. A survey was conducted of students of the United States Army Command and General Staff College (USACGSC) in 2010 with the goal of answering this question. The demographics of this study consisted of a majority of students with advanced
degrees and extensive experience in taking distance learning courses. The students surveyed did state that distance learning programs were lacking the dialogue with fellow students and instructors that traditional courses provided. Also, the survey results showed that distance learning courses did not have the tools available that could overcome this shortfall. (Weston, 2010) The life experiences that are shared from spontaneous discussions do not occur in bulletin boards, chat rooms, or even teleconferences in the manner that occurs in a classroom.(Weston, 2010)

The USACGSC survey also discovered several other comparisons of distance learning courses as compared to traditional courses. Flexibility was the overall theme behind why most of this group took distance learning coursework. Forty percent of the students surveyed stated that their primary reason for taking courses through distance learning was that it fit better into their work schedule. Another twenty-five percent stated that distance learning allowed them to complete the work at their own pace. (Weston, 2010) Some of the connivances of distance learning that the focus group preferred was the ability to submit assignments and take tests online versus being in a classroom to accomplish these tasks. When this group was questioned on their ultimate preference in a learning environment, an overwhelming portion of the group stated the interaction with other students provided a more effective learning environment. The study group stated that if not for the video conferencing built into their learning experience, it was uncertain if class members would have experienced any increase in knowledge from the course. This group’s response further fuels the question as to whether distance learning can ever be a total substitute for classroom learning environments. (Weston, 2010)

The demographics of the student analysis conducted by Weston and the USACGS college was unique to the fire service learner. All of the respondents were active military with most
holding advanced degrees. (Weston, 2010) The typical fire service learner will not hold the same level of college education. The similarities of the fire service learner and the focus group are the hectic schedules and the inability to sit in a classroom in a traditional setting due to work assignments.

In a very similar study conducted at the School of Business at West Georgia University, research was conducted in an attempt to gain understanding from the students’ perspectives on distance learning. This study strictly compared distance/online learning to traditional classroom settings. Distance learning courses were defined as those in which the students completed all assignment on their own with no interaction with the instructor. The online course included classes in which students did interact with fellow students and the instructor through online bulletin board posts, email, and chat sessions. (O’Malley & McCraw, 1999)

The demographics of this study included college sophomores through graduate students in the School of Business. The highest levels of responses were represented by the junior level students with 62.5% being from that group. The next highest response came from the senior group accounting for 29% of the responses. The remaining responses came from the sophomores and graduate students who participated in the study. Of these groups, 64% had taken online courses and 48% had taken the distance learning type of course mentioned in this paper. Freshmen were not included in this study due to their lack of experience in college course work. (O’Malley & McCraw, 1999)

The research indicated a very low opinion of the effectiveness of the distance learning format discussed in this study when compared to traditional learning. The students indicated that although this type of course was the most flexible of any delivery method; it failed in comparison in the full educational experience. The main downfall of this type of course was the complete
lack of interaction with students and instructors. (O’Malley & McCraw, 1999) Of the students surveyed, 67% had experience in a hybrid course which included online coursework combined with classroom sessions and chat rooms. This group agreed overwhelmingly that the hybrid courses gave them the most learning satisfaction of any course offered outside of the traditional class setting. The blended learning format allowed students to still have flexibility and maintain interaction with other students and the instructor.

When educators are contemplating the use of a distance learning or hybrid learning format, there are several issues that must be taken into consideration. Often, instructors have the misconception that a course that is taught using traditional teaching formats can be effectively converted into an online delivery method. (Meloni, 2011) The course must be developed to ensure that educators meet their overall responsibility of ensuring student success. A power point presentation placed online for students to read with corresponding assignments will not reach the students in a way that engages them to learn. The course must be planned and executed so that the students are challenged as well as engaged through the entire course. (Meloni, 2011)

The choice of media and tools utilized within the distance learning course must match the expected outcomes of the course. The use of bulletin board posts are effective if these posts are used to supplement discussions that occur within chat sessions or in class sessions of the hybrid courses. A bulletin board post alone will not engage the students to do anything more than meet the requirements to post a required number of times as instructed. (Cottle & Glover, 2011)

The Society of Teaching Psychology compared the delivery of the course Developmental Psychology through traditional setting and in the hybrid distance learning format. The definition of hybrid distance learning from their perspective was the use of limited classroom meetings
with online assignments to supplement for lecture times. The comparison attempted to measure actual learning outcomes from the two formats to determine the effectiveness of each type of delivery mechanism. The comparison was of 209 total students with 110 in the traditional delivery course and 99 in the hybrid distance learning method. The comparison found that 89.7% of the hybrid distance learning students completed the course with a passing score and 82.4% of the traditional students obtained a passing score in the course. (Cottle & Glover, 2011) There was a notably higher success rate with the distance learning version of the course.

The comparison study conducted issued course evaluations of each delivery method. There were numerous students in the traditional delivery method that stated that lectures could not hold their attention for more than one and half hours. The instructors were held high in their abilities to deliver the materials and their true life experiences made for more interesting lectures. Still, the length of time required to sit at one time the ability to absorb all of the material was a challenge for many of the students. In the contrast with the distance learning students the comments were that this method gave the opportunity to learn at their own rate. When the student felt it was time to take a break it was up to them. Other interesting comments were that many students stated they were hesitant about group work requirements in the distance learning method. Once the course began these same student began to enjoy this method and found that these group assignments were equally as effective as in course discussions within a traditional class. (Cottle & Glover, 2011)

The traditional class in the comparison attempted to gain some benefit from the distance learning ideas. This class integrated several small group learning activities which would simulate the work groups from the distance learning. The instructor found a great deal of merit in the concept of students teaching each other and pushing each other for success in the course.
The students responded very highly in the course evaluations of this usage of the small group activities in a similar way as those responded to the group activities in the distance learning courses. (Cottle & Glover, 2011)

In an article published in the Quarterly Distance Learning Education Journal, another study was conducted to determine the effectiveness of distance learning courses. The study found that both instructors and students in their study rated their learning experience more effective in the usage of distance learning. (Seok, Kinsell, Dacosta, & Tung, 2010) These authors did pose the question as to whether gender and more so generation have an effect on the outcome of their study.

In this study the female respondents did score higher than their male counterparts. The study did not separate gender but did suggest that an entirely separate study was warranted to determine whether gender did play in the effectiveness of distance learning courses. The study referred to two types of students, digital natives and digital immigrants. The digital natives were very accustomed to the usage of the internet and computer usage. The digital immigrants were learning how to use these tools for the first time while attempting to learn the material in the course. (Seok et al., 2010) Instructors also fell into this same classification with distance learning and experience in dealing this type of course. Teachers with more experience teaching through distance learning experienced a student with higher satisfaction with the course. A great deal of attention has been focused on the student but, little has been focused on the instructor of distance learning. The demands of a course through distance learning can be even greater than that of the traditional course delivery. (Seok et al., 2010) Instructors with lower levels of tenure also had their own struggles due to lack of experience. These instructors were still learning their way through typical classroom interaction and asynchronous learning posed a significant challenge
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for these instructors. The result was that students gave these junior instructors lower scores in satisfaction in their end of course evaluations. (Seok et al., 2010)

The difference between 100% online and hybrid distance learning was the question of study conducted at Nova Southwester University in Florida. A professor taught three same Human Resource Management courses at this University. Two of the courses were delivered through a 100% online format and the third was a hybrid of meeting one day each weekend with an online platform to supplement between sessions. The students had to complete bulletin board postings, email, assignments, and tests online. These students also were required to attend some lectures in a classroom. This study completed an in depth review of the academic success based on scores of the students in all three classes. The results found that each group performed very close in average scores on exams and work. (Gibson, 2008) The students in the pure online course scored 4% higher on the midterm then those in the hybrid offering. The students in the hybrid offering scored 3% higher on the final exam then those in the online course. The average scores for both groups on the midterm were a mid level B. The final average for both groups on the final exam was a mid A. (Gibson, 2008)

When all work for the entire course was factored in the comparison of final averages were 89.7% for the hybrid student group and 88.7% for the online student base. The author’s theory on the difference in scores during the midterm were the students in hybrid class were not accustomed to this nature of testing and by the final exam had developed more comfort in this testing method which resulted in an increase in scores. The author in this study also presented that there was no significant evidence that pure online courses are any more difficult than those of hybrid or traditional delivery. The author also discussed a theory that plagiarism was more prevalent in distance learning type courses and that during the study three students received zeros
due to plagiarism out of a total of 39 students taking these courses. The author did not feel that these three could confirm or deny that theory and suggested further research should be conducted into that area. (Gibson, 2008)

One of the largest challenges with distance learning is the missing face to face interaction with instructor or a social presence. Having an established social presence within a distance learning course is an obstacle that is not easily overcome. Many students state that a social presence with the instructor and other students is vital to their satisfaction with a course. (Steinweg, Trujillo, Jeffs, & Warren, 2006)

Instructors in distance learning courses have attempted many different strategies to overcome the lack of a social presence such as self introductions within a chat room for both the instructor and the students. The component that will be the most difficult to overcome is the missing human element of nonverbal communications. Students will struggle and not obtain the expected learning by simply reading a plethora of materials designed to substitute for lecture. It does not matter what learning style a person has, humans are by nature social and any learner learns best with social interaction. (Steinweg et al., 2006)

In course development of distance learning class the primary focus must be on pedagogy instead of technology. (Steinweg et al., 2006) Technology must be just viewed as a tool to communicate the material and not a substitute for the personal aspect of the course. Those who focus on the teaching style will write in the components needed for the student to feel the social interaction needed for learning. An important element of the development of the course is to remember that distance learning students are starting in a deficit due to not meeting with their instructor on day one and gaining an understanding of the course. A typical class starts off on day one with covering the syllabus so that the students know what is going to be expected of
them during the course. Distance learning students not only have to figure out what course work expectations are being placed on them but also how are the mechanics of the distance learning course going to be managed. These students have to figure out how to submit assignments, are there required chat sessions, required in class meetings, or any other expectations. Instructors must include a comprehensive syllabus that answers all of these questions and be available the first week of class to answer these questions. (Steinweg et al., 2006)

Generation Y is the fastest growing generation in the workforce at this time and were born between 1980 and 2000. This generation prefers to learn at their own pace and distance learning courses excel in this aspect. (Coates, 2007) The attention span for learning in generation Y is about 20 minutes before a break or activity is needed. The use of distance learning will allow for these students to read and work within that time space. The learning process is therefore managed by the learner instead of the educator. The problem with distance learning and generation Y is this generation does have a need for social interaction which pure distance learning will not provide. Hybrid distance learning with chat sessions or actual classroom meetings will best meet the needs of this type of learner. (Coates, 2007)

One major advantage that theory Y generation has with the growing usage of distance learning is this generation is very technology oriented. Generation Y has integrated technology in almost every aspect of their life. The use of technology for learning will be very a very seamless transfer from the traditional classroom setting. In addition the technology used in distance learning programs to present material will be very attractive to this generation. (Coates, 2007). Generation Y also does not mind reading to gain knowledge and will not struggle from having to read online materials along with textbooks.
One of the major challenges in dealing with generation Y is that this group needs structure. Distance learning courses often times require the student to structure themselves and be disciplined enough to complete the work. Distance learning courses must have deadlines to have materials completed so the Y students will be successful. Otherwise these students will lose interest or fall behind and not complete the course. (Coates, 2007)

Asynchronous learning is a large part of distance learning in which there is a group of students learning outside the confines of a classroom. The group is learning without interaction with each other as compared to synchronous learning in which the group is in a classroom as a group in the traditional setting. Building a learning community in the asynchronous environment will be vital the success of distance learning programs. (Palloff & Pratt, 2007) There must be a merger in synchronous and asynchronous learning which lends toward the blended learning or hybrid course. These courses provide all of the flexibility of a typical distance learning course with the social interaction and relationships that is found in the synchronous learning arena. (Palloff & Pratt, 2007)

The instructors building the distance learning classes must develop this course without the thought of uploading masses of information online with the expectation of the learner to read and learn. The integration of opportunity to discuss thoughts with fellow students and the instructor must be factored into the course. Activities also must be utilized to keep the course challenging and engaging. (Palloff & Pratt, 2007)

Introverted students are always a challenge for any instructor within a lecture session. These students are shy and do not want to have to provide feedback during lectures. These types of students prosper very well within the hybrid distance learning course. Most interaction from student to student and student to instructor will be accomplished through a chat session or email
which helps the introverted student to engage more without having to speak in front of other students. (Pallof & Pratt, 2007)

**Procedures**

Definition of terms:

For the purpose of this study the term hybrid distance learning will be defined as a class which is conducted through the use of online platforms with integration of interaction of students and instructors through chat sessions and also to include scheduled traditional classroom sessions. Distance learning will be defined as courses taught without the chat room interaction and scheduled traditional classroom settings.

Research was conducted through several different mediums to answer the research questions. Articles were reviewed on campus of the National Emergency Training Center at the Learning Resource Center. In addition internet search through Galileo which is a virtual library through the University System of Georgia which allows for downloading peer reviewed sources and articles to complete the literature review section of this ARP.

*How do students perform on end of course tests in the online courses as compared to classroom version of the courses?*

The Georgia Fire Academy maintains end of course files for ten years after a course was completed. This file includes a pass/fail roster which reflects the success of the student, copy of the test instrument used with all student score sheets; end of course evaluations, and course costs. An audit was conducted of all the course files for Acting Officer Charge and Acting Officer in Charge Online from delivered from 2008 through June of 2011. A comparison was made of the end of course tests for both courses. There were eighteen Acting Office in Charge classes
reviewed and fifteen Acting Officer in Charge Online. An average score was determined for each version and it was noted which delivery method had the higher average score.

To create a better comparison the test scores were placed into four categories by blocking scores together. All scores were blocked in the following ranges: below 70, 70 to 80, 81 to 90, and 91 to 100. Then the percentage of students that scored within those brackets was calculated. The Georgia Fire Academy’s policy states that students must score at least a 70 to pass the course. A 70 therefore was meeting the standard and anything below a 70 did not meet the standard. The students who scored in the 70 to 80 bracket met the standard and those who scored 80 to 99 exceeded the standard. The students who scored 100 demonstrated mastery of the course content. A comparison was then made of the total percentage of students who scored meeting the standard or higher to determine which delivery method had the highest percentage of students who scored meeting the standard and percentage of students who surpassed the standard.

The standard GPSTC end of course evaluation is a standard for that is completed by all students that takes a course. Appendix A contains a copy of this document. One of the questions contained within the form is, “The examinations were consistent with course content.” The Likert scale is used on this instrument for the response of strongly agree, agree, disagree, or not applicable. An audit of this category was noted for each delivery method to observe how the students responded in this category. A points scale was assigned to each response with strongly agree being worth five points, agree worth four points, agree three points, disagree being worth two points, and not applicable being worth zero points. There were a total of 453 evaluations for Acting Officer in Charge and 220 for Acting Officer in Charge Online. It was then determined
what the total amount of points possible based on number of students then a percentage of how many scored in each category was given. The following formulas were used:

- total number of respondents x maximum points available = total points possible
- number of point scored by respondents divided by maximum points = raw score
- raw score divided by 100 = percentage score

The percentage score for the testing response on the course evaluations were then compared to see what class had the highest percentage score. This higher percentage score demonstrated which class gave the students the perception or opinion the course prepared them for the final test.

An online survey was also sent to all of the students who had taken both Acting Officer in Charge and Acting Officer in Charge Online through the online service Survey Monkey. Appendix B and C contains the questions and results of these surveys. There were a total of 47 responses from Acting Officer in Charge and 33 from Acting Officer in Charge Online. The survey was sent to every student who had attended the courses in since 2008 who had an email listed in the GPSTC registration system. There were a total of 169 surveys sent for Acting Officer in Charge and 95 for Acting Officer in Charge Online. These surveys were generated from the current contact list the GPSTC had for student email from these courses. Due to not all students having their email registered in the GPSTC data base, every student who attended these courses was not able to be contacted.

The survey instrument was developed with sixteen questions using the Likert Scale for responses with the choices being, Strongly Disagree, Slightly Disagree, Disagree, Neutral, Agree, Slightly Agree, and Strongly Agree for questions. To determine the students perception on how the two courses prepared them for the end of course test the following question was used,
“When taking the final test for the course I felt as though the course had prepared me to be successful on the end of course test.” The survey respondents’ answers were charted and compared to determine their perspective on how each course prepared them for the end of course test.

**How many students complete the courses in the online delivery method as compared to the classroom version?**

The Georgia Fire Academy has an electronic data base which tracks the total number of students which start a course and also the total number of students which complete the course. An audit was conducted of this data base to determine the completion rate of each course. Each course was audited from 2008 through June 2011 and the number of students which started the courses but did finish was calculated. Then a drop out percentage was determined based on the number students who start compared to the number of students of complete. This percentage was then compared to determine which version has the highest completion or success rate.

**What is the student satisfaction in the online courses as compared to the classroom version of courses?**

The end of course evaluations was reviewed in several areas to determine the initial reaction once the course was completed on student satisfaction. The end of course evaluation had open ended questions to allow students to comment on what was liked about the course and what needed to be changed. Course evaluations were reviewed and these comments were examined. The student comments gave the researcher the overall satisfaction of the students.

The same process of assigning points to the Likert Scale responses and determining the percentage of students who ranked their satisfaction like was conducted with the testing
questions. The two courses were compared to see which course demonstrated the higher percentage of students that rated strongly agreed and agreed.

The survey also had questions to assess student satisfaction with the course. The questions asked related to student satisfaction for both classes was:

- What was your satisfaction with the materials being presented?
- The course met all of my expectations
- The course made a positive impact on how I function at my department.
- I find myself being more effective as a leader (formal or Informal) than I was prior to taking the course

The possible scores were:

- Totally Unsatisfied
- Partially dissatisfied
- No Opinion
- Slightly Satisfied
- Highly Satisfied

The percentage of students who scored satisfied and above was determined along with the percentage of students that scored partially or totally satisfied was determined for the Acting Officer in Charge Online and Acting Officer in Charge. Then a comparison of the percentages was made to see which version had the highest percentage of scores showing satisfied.

*How many students take online classes out of convenience versus preferred learning style?*

A survey question was included within the survey sent out to previous students which stated:
• Why did you choose to take Acting Officer In Charge (AOIC) through the distance learning instead of the traditional classroom setting?

The possible scores on this question were:

• Convenience to work at my own pace
• Not able to get time off to take on campus
• Loss of part-time income to take traditional offering
• I learn better through distance learning courses

The percentage of students who scored the, I learn better through distance learning courses was compared to the other responses which were all answers of convenience. A question was included in the survey of Acting Officer in Charge students to determine why the traditional format was chosen instead of the online version. The question used was: Why did you choose to take Acting Officer In Charge (AOIC) through the traditional classroom setting versus the distance learning? The following were the possible answers:

• Needed the structure of a traditional class.
• Easier for my schedule to get the class over in the
• Shorter time from of on campus.
• I learn better through traditional learning courses.

The percentage of students which selected I learned better through traditional class was compared to the number of students which selected the option I learn better through distance learning courses.

What are the course cost comparisons for the delivery of the traditional classroom delivery as compared to the online version?
The Georgia Public Safety Training Center computes the course costs for every class delivered. Costs such as printing, instructor costs, and required teaching materials are calculated. A complete course costs was computed and a comparison of AOIC and AOIC online total costs was made.

*Do students take the distance learning method due to it better meeting their learning style?*

The survey that was sent out to both students who took the distance learning format and also traditional delivery format students included a question which asked the students their best learning style. The responses were compared to determine the percentage of respondents which selected that response for both format deliveries.

**Results**

Test scores were compared of the students who attended the traditional format of the course to those who attended the distance learning format to determine if one style reflected a higher success rate. The average final test scores were determined for the initial comparison. The results determined that the average test score for the students who attended the traditional delivery method was 77.4. The average test score for those students who attended the distance learning format of the course was 84.62. Based solely on the average test scores students who attended the distance learning format of the course scored higher than those who attended the traditional course.

To conduct a better comparison of test outcomes of the two delivery methods students were bracketed by their test scores. Based on Georgia Public Safety Training Center policies a score of 70 is passing on tests and that is determined to be meeting the standard. Those students who scored below a 70 were placed in the category of not meeting the standard. Students who scored 80 to 99 were said to have exceeded the standard. While those students who scored a 100
demonstrated mastery of the material presented. This comparison gave a better comparison of the two courses to determine the percentage of students which met or exceeded the standard.

The chart below reflects a comparison of the test results by category:

<table>
<thead>
<tr>
<th>Category</th>
<th>AOIC Online</th>
<th>AOIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not meet</td>
<td>20.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Met</td>
<td>40.00%</td>
<td>20.00%</td>
</tr>
<tr>
<td>Exceeded</td>
<td>60.00%</td>
<td>80.00%</td>
</tr>
<tr>
<td>Mastery</td>
<td>80.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Acing Officer in Charge Online demonstrated a higher rate of not meeting the standard of scoring a 70 or greater on the final test. Acting Officer in Charge online had 4.08% of the students to make below the standard. The Acting Officer in Charge did not have any students who scored below the standard. These results did reflect that the traditional delivery method does not have a failure rate as compared to the distance learning format which did.

Acting Officer in Charge Online students had a higher percentage rate of students meet the standard with 18.37% of the students taking the test scoring between a 70 and 79. Acting Officer in Charge had 3.39% of the students score within the same range and meeting the standard. When combined the results of meeting and not meeting the standard the Acting Officer In Charge Online students had 22.45% of the students scoring at or below the standard. Acting Officer in Charge had 3.39% of the students scoring in this same range.
Acting Officer in Charge had 88.98% of the students exceed the standard by scoring between 80 and 99 on their final test. Acting Officer in Charge Online had 61.22% of the students score in this same test score range. Acting Officer in Charge demonstrated a higher percentage of students who exceeded the standard in their test scores as compared to the online version.

Acting Officer in Charge Online had 16.33% of the students score a 100 which reflected mastery of the course content. Acting Officer in Charge students demonstrated 7.63% of the students scoring a 100. Acting Officer in Charge Online had a higher number of students to demonstrate mastery of the subject as compared to the on campus version. However, when combined the exceeding the standard and mastery the traditional course had 96.61% of the students score exceeding the standard or mastery. The online format had 77.55% of the students score meeting the standard or mastery of the material.

The on campus version of the course had a higher success rate in final testing then that of the online courses. In determining the effectiveness of the delivery methods both courses demonstrated a very acceptable success rate of students passing the final test. The ultimate goal would have been for all students to score meeting the standard of above but that goal could not be reached. The reason as to why it was not reached would have to be researched further by contacting those students who did not pass and interview them to obtain further information.

Two other methods of determining the success on the final test were utilized in the area of the student’s perspective on how well the course prepared them for the final test. The first method examined was the end of course evaluations which all students of the Georgia Public Safety Center take at the conclusion of the course. This instrument had a question in which the students must rate how on how the course material matched up with the final test. The student
responses for each delivery method were determined by creating a percentage of students who scored: Strongly Disagree, Disagree, Agree, Strongly Agree. Agree and strongly agree percentages were combined and strongly disagree and disagree scores were as well. The comparison revealed that in the distance learning course 87.3% of the students scored that the course test matched the material and 12.7% of the students stated that it did not. In the traditional course 92.2% of the students stated that the course prepared them for the final test while 7.8% stated it did not. An overwhelming majority of student’s perceptions were that the courses met the final test.

Both classes’ end of course evaluations and the survey reflect that the student’s perception was the courses prepared them for the final test. In the survey the AOIC course had a 100% statement that the course had prepared them for the final test while AOIC had 8.6% of the students state that it did not. The reason could be that the distance learning course had a 100% response could be that the course has a consistent delivery. The course is delivered the exact same method every time since the lectures are recorded and viewed online. The traditional course could have some inconsistencies based on the instructor teaching that version of the course. This needs to be researched further to determine how the constancy of delivery effects student’s perceptions on being prepared for the final test.

The question of whether AOIC Online course had a higher dropout rate as compared to AOIC was researched. The AOIC Online course was determined to have a 27% drop out rate of students who start the course but do not complete it. Students who never started the course after being accepted into it or failed the course were not calculated into this figure.

AOIC had a 1.2% drop rate of those students who had to withdraw from the class. The only students calculated into this figure were those in which were present for the first day of
class but did not complete the course. Students who did not show up for the first day of course but were accepted and those that failed the course were not included in this figure.

The results showed that AOIC Online course has a much higher dropout rate as compared to that of AOIC. The online students dropouts typically complete up to module 3 then do not complete any other modules. It is uncertain as to why this occurs but could be speculated either the course delivery format was not conducive to their learning style or that amount of work required through the online course overwhelmed them. Further studies of why students drop out of the online course needs to be conducted in an attempt ascertain why the students dropped the course and develop strategies to lower the dropout rate.

To determine the overall satisfaction of the students taking both versions of the courses end of course evaluations were examined. The comments to the open ended questions were reviewed in attempts to see what the students felt about the courses and also what changes should be made. The end of course evaluations for the online class had numerous comments which reflected the satisfaction of the students. The one statement that was repeated by numerous students was the desire to see more classes developed and delivered in this format. Several other positive comments were given such as: great class, enjoyed it, and learned a lot. The most common repeated answer on what should be changed about the course was the desire for more instructor contact. This comment does support the theory that the major downfall of distance learning is the lack of social contact within the learning environment. In general with all comments were reviewed the students initial reaction was the course was effective to them.

The ends of course evaluations for AOIC open ended questions comments were reviewed. The students made several comments in reference to the content of the course and their desire to see the incident management section expanded. The general comments noted on
the evaluations were great class, enjoyed the class, expanded my knowledge, and great instructors. The only negative feedback statements that were made were a direct reflection to a single class which had unusually circumstance such as instructor being delayed to return to class or technical problems with the command simulator.

In the survey of students from the online courses, four questions were utilized to determine the satisfaction of the students. The first question was, “What was your overall satisfaction with the course materials presented?” The survey results were that 87.5% of the students stated that they were either satisfied or highly satisfied with the course materials. The remaining 12.3% of the students stated they were either not satisfied or highly unsatisfied. This determined that the majority of the students were satisfied with the course. Follow up questions need to be sent to those that were not satisfied with the course to determine what caused these students to be unhappy.

The next question utilized to determine satisfaction was, “The Course met all of my expectations.” The results of this question was 87.5% of the students stated that the course met their expectations. The remaining 12.5% of the respondents stated that the material did not meet expectations. It was noted that on the end of course evaluations there were some comments that the course did not meet expectations in that the students did not know the scope of the course prior to attending, however these students stated that the course was outstanding.

The third question on the survey to determine the student satisfaction of the course was,” The course made a positive impact on how I function at my department.” The results were that 8.3% of the students replied neutral in this category. The remaining students all responded in favor that the class had a positive impact on their performance at their department. This
response accounted for 93.7% of the students making this statement. The results made a very strong argument of the satisfaction of the students.

The fourth and final question on the survey to determine the satisfaction of the students was, “I find myself being more effective as a leader (formal or Informal) than I was prior to taking the course.” The Survey had 12.5% of the respondents give a neutral response with the remaining 87.5% stating that the course enhanced their leadership abilities. The overall results of the survey were that the vast majority of the students were satisfied with the course and its components.

The same questions were utilized to survey the students in AOIC to determine the satisfaction. The first question was, “What was your overall satisfaction with the course materials presented?” The question’s results was that 91.5% of the students stated that they were either satisfied or high satisfied with the course material. The remaining 8.5% stated that they were either unsatisfied or highly unsatisfied with the course. The results determined that the majority of the students were satisfied with the course and its content. The same follow up survey needs to be conducted to determine what caused the students to not be happy with the course.

The next question utilized to determine satisfaction was, “The Course met all of my expectations.” The results of the survey were that 89.3% of the students stated that the course met or exceeded their expectations. There were 8.5% of the students that stated the course did not meet their expectations and 2.1% gave a neutral response. The majority of the students stated that the course met or exceeded their expectations.

The third question on the survey to determine the student satisfaction of the course was,” The course made a positive impact on how I function at my department.” The results were that
87.2% stated that course made a positive impact on their performance at their department. There were 4.2% that gave a neutral response to the question and 8.5% that stated the course did not make a positive impact on their performance.

The fourth and final question on the survey to determine the satisfaction of the students was, “I find myself being more effective as a leader (formal or Informal) than I was prior to taking the course.” The results were that 85.1% of the students stated that the course enhanced their leadership abilities. There were 6.3% that gave a neutral response and 8.5% stated the course did not have an impact on their leadership abilities.

The following is a chart to compare the survey results of the satisfaction of the students from the distance learning courses and traditional courses.

In comparison both classes had data to support that the majority of students were highly satisfied with the course. The final data comparison demonstrated each version had its strengths over the other and one version did not excel over the other.
Research into the costs of conducting the two different formats was conducted utilizing GPSTC course cost worksheets. It was determined that the average course costs for AOIC Online was $228 to conduct. This figure includes staff time and printing costs (forms, student materials, and diplomas). In contrast AOIC was $1,039 to conduct which also includes staff time and printing costs (forms, student materials, and diplomas). AOIC Online is considerably more cost effective to deliver then AOIC. However, the initial costs were higher for AOIC Online. The initial cost was $17,996 which included software and Licensing fees. Staff time for curriculum development was not calculated due to it being the same for both courses. The initial start up costs of the distance learning course will quickly be made up in the cost savings of $811 each time the course is delivered.

To determine whether students took the online course due to learning style a survey question was built into the survey as to why the students took this format of course. A similar question was also built into the survey that was sent AOIC students to determine their feelings on distance learning. The survey resulted that 75% of the students who took the distance learning class did so out of convenience or not being able to get off of work and 25% did so out learning style preference. In AOIC survey results were that 63% of the students stated the need for traditional classroom setting. Additional 30% stated the need of the structured traditional classroom learning environment.

**Discussion**

The main goal of this research was to determine the effectiveness of distance learning courses at the Georgia Public Safety Training Center to justify future distance learning courses being developed. The effectiveness was determined by comparing data from Acting Officer in Charge and Acting Officer in Charge Online. Additional feedback was obtained through end of
course evaluations, surveys, and course cost analysis. Based on the test score comparisons, student feedback, and course cost analysis distance learning is an effective class delivery method for the Georgia Public Safety Training Center.

The first criteria of evaluation was test scores and it was found that while the traditional courses and distance learning courses did not match exactly, the results were close enough to show effectiveness. A review of course files found that 77.55% of Acting Officer in Charge Online students scored meeting the standard of higher on final course testing and 96.61% of traditional students met or exceeded the standard. This findings does not support the research of Cottle and Glover (2011) in which they found their focus group of distance learning students had a higher completion with passing score then those of the same course taught through the traditional format. Cottle and Glover’s theory was that the distance learning format appealed to the new generation of learners and these learners having about a 20 minute attention span in class. The students can learn in a matter that best meets their learning style and the ability to complete the coursework when it is the best time for them to learn.

A study conducted at Nova Scotia University further supported the fact distance learning students will score very close or even higher at times than those of traditional course students. (Gibson, 2008) This researcher supports the theory that distance learning students will score as well or even better than that of traditional course delivery. The testing results from AOIC and AOIC online where very close testing results.

One of the challenges found was that distance learning classes have a higher dropout rate then that traditional course. Acting Officer in Charge Online at the Georgia Public Safety Training center has a 27% drop out rate which supports Coats’ theory that some students struggle in distance learning courses due to the lack of structure and deadlines. Coats theory was the
generation Y was more subject to this then the other generations. Acting Officer in Charge offered through a traditional format only had a 1.2% drop out rate which had the typical structure of traditional class. The survey conducted in Acting Officer in Charge Online students was comprised of 18.2% generation Y students. The next largest group represented was generation X which has very similar learning characteristics as that of generation Y.

Ensuring that students are satisfied with the learning experience has to be a priority with any learning institution. Distance learning courses have struggled meeting the same satisfaction as that of traditional courses. The USACGSC study found that its students were missing the social interaction present in a traditional course. These students stated that chat rooms and bulletin boards could not replace in class interaction. While reviewing end of course evaluations for Acting Officer in Charge Online several students made comments about needed more interaction with the instructor. While these students were overall satisfied with the learning, they still wanted more interaction which supports the USACGSC research which was conducted by Weston.

McGraw and O’Mally of West Georgia University conducted research into distance learning in two different formats. The study reviewed courses offered strictly online and also hybrid with on campus sessions as well as the online work. The students who took the courses through strictly online made the same comments that the Acting Officer in Charge Online that the course needed more instructor interaction. The chat sessions and final practical offered in Acting Officer in Charge Online did not completely satisfy the need for social interaction with the instructor and other students based on end of course evaluations.

The student satisfaction experienced in Acting Officer in Charge Online could also substantiate Weston’s theory that the student’s in distance learning courses gain their satisfaction
through sheer convenience. Acting Officer in Charge Online gave the students the chance to learn when they were ready. The final result was high ratings on end of course evaluations and student surveys. The lack of satisfaction due to social interaction was counter balanced by the ability to learn when the learner was best ready.

An overwhelming number of Acting Officer in Charge Online students took this format of class due to the flexibility. The study conducted by Weston found the same fact to be true at the USACGSC. Fifty percent of their students took the online courses strictly because it was conducive to their schedule. The survey of AOIC Online found that the majority chose this format for the same reason as Weston’s. The ability to fit the course into their work schedule and not being able to get off work to attend courses due to staffing issues caused them to pursue a distance learning course. The survey found that the top three reasons that Acting Officer in Charge Online students chose to take this course were: flexibility to work at own pace, not able to get off of work to attend class or loss of income from part-time work.

When evaluating the cost effectiveness of distance learning as compared to traditional learning, the distance learning courses were found to be much more cost effective. There was a savings of $811 each time Acting Officer in Charge Online was delivered over Acting Officer in Charge. Mccrea found that private business has reported a 20 to 50 percent cost savings of delivering training through distance learning due to the cost of assembling staff to teach courses. The most significant cost savings in Acting Officer in Charge Online was the reduced staff hours spent teaching the course. Mccrea also stated that due to economic trends, training in many Emergency Medical Agencies had to be conducted through distance learning due to staffing issues. The survey conducted of Acting Officer in Charge Online Students found that 68.8% of the respondents stated that their choice to take the online course was due to not being able to get
off work to take the traditional course which supports Mcrea’s theory. The cost savings of Acting Officer in Charge Online extended beyond the savings of the Georgia Public Center and to the Department’s that had members take the course. These savings were not tracked to this point but possibly will be in the future. Acting Officer in Charge Online has to be conducted 22 times to make the start up costs as compared to Acting Officer in Charge.

**Implications**

The desire for more classes in a distance learning format was presented in end of course evaluations of students. The Georgia Public Safety Training Center as a whole has experienced a drop in student attendance in the past few years. The Center has to develop ways to reach students in a manner that does not compromise training. Future budget implications could occur should the students numbers continue to lower. Distance learning courses an effective tool to increase student numbers. A well developed hybrid distance learning with scheduled class sessions will not compromise training.

The need for a better online platform was prevalent due to the shortfalls of the current system. Social interaction is key to student satisfaction and other then chat rooms the current platform does not have the tools to assist with this. GPSTC did obtain blackboard on a grant but the continued usage of this platform is contingent on future funding. Research concluded that this platform will offer the instructor tools to better serve the student

**Recommendations**

Over the course of the next year the Georgia Public Safety Training Center should evaluate which courses are ready to be converted into a distance learning format. Once these courses have been identified they can be prioritized into which courses should be converted in what order. Within the Fire Academy Division the Fire Officer Series has demonstrated the need
for these courses being offered through a distance learning format. Feedback obtained through end of course evaluations have determined that the level customers taking these courses prefer the flexibility offered through this type of course delivery.

Research needs to be conducted to develop strategies to lower the dropout rate of distance learning students. One of the measures that will determine future success of distance learning courses at the Georgia Public Safety Training Center will be success rates and numbers of students completing the courses. The current trend of dropouts within the distance learning will overshadow the success of new classes if strategies or not developed and implemented to lower these numbers.

The current online platform has limitations for social interaction with other students and instructors. The Training Center recently acquired Blackboard through a grant which has several tools available to the instructor to increase the social interaction. The Georgia Public Safety Training Center should examine the cost effectiveness of maintaining beyond the grant period. The tools offered through blackboard will keep the students further engaged in the class and possibly reduce the dropout of the course.

The Georgia Public Safety Training center needs to conduct research into why the Acting Officer in Charge Online courses had a percentage of students who did not pass the course. The results could be utilized to assist future students and keep them from failing the course. The Center should start a procedure of contacting students who do not compete or pass distance learning courses to determine the reason as to why they either did not pass or complete the courses.

A follow up survey needs to be conducted for those who stated dissatisfaction with the course. This follow up will possible give ideas to enhance both classes based on this feedback.
The survey conducted gave raw results of each respondent which will allow the center to pinpoint those that need to have a follow up survey.
References


Appendix A

GPSTC End of Course Evaluation

The Course:

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Disagree</th>
<th>Applicable</th>
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<tr>
<td>1. The content of this course was what I expected.</td>
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<tr>
<td>If not, explain:</td>
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<tr>
<td>2. The content of this course was relevant to my job assignment.</td>
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<tr>
<td>If not, explain:</td>
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<td>3. This training program will help me do my job tasks better.</td>
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<tr>
<td>If not, explain:</td>
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<td>4. The training program was well organized.</td>
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<td>If not, explain:</td>
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<td>5. The examinations were consistent with the course content.</td>
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<td>If not, explain:</td>
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<td>6. I will apply what I have learned back on my job.</td>
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<td>If not, explain:</td>
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The Instructors:

Instructor Name: ___________________________ Topic: ___________________________

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<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</tr>
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<tr>
<td>2. Knowledgeable on topic</td>
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<tr>
<td>3. Presentation understandable</td>
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<tr>
<td>4. Delivery well organized</td>
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<tr>
<td>5. Participation encouraged</td>
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<td>6. Training aids were helpful</td>
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<td>Topic: ___________________________</td>
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Overall:

What were the strong points of this course for you as student?

What, if anything, would you change about the course content or delivery to make it a more valuable learning experience for you?

Feel free to share any other comments.
What was your overall satisfaction of the course materials presented?

The course met all of my course expectations.
The course made a positive impact on how I function at my department.

I find myself being more effective as a leader (formal or Informal) than I was prior to taking the course.
When taking the final test for the course I felt as though the course had prepared me to be successful on the end of course test.

How would you rate the effectiveness of your learning experience on campus in relation to other training courses?
Why did you choose to take Acting Officer In Charge (AOIC) through the traditional classroom setting versus the distance learning (online) format? (please check all that apply)

- Needed the structure of a traditional class: 30.4%
- Easier for my schedule to get the class over in the shorter time from on campus: 39.1%
- Did not have the technology available to complete distance learning: 6.5%
- Learn better through traditional learning courses: 63.0%
Appendix C

Survey Questions and Results from Acting Office in Charge Online

N=32

What was your overall satisfaction of the course materials presented?

The course met all of my course expectations.
The course made a positive impact on how I function at my department.

I find myself being more effective as a leader (formal or Informal) than I was prior to taking the course.

When taking the final test for the course I felt as though the course had prepared me to be successful on the end of course test.
How would you rate your online learning experience as compared to traditional classroom setting?
Why did you choose to take Acting Officer In Charge (AOIC) through the distance learning instead of the traditional classroom setting? (please check all that apply)