

The Conversion and Evaluation of USAFSAM Online Training during COVID-19



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BACKGROUND

The United States Air Force School of Aerospace Medicine (USAFSAM) is an internationally renowned center for aerospace medical learning, training approximately 6,000 students annually. As a result of the Coronavirus disease-19 (COVID-19) pandemic, rapid conversion to an online format was required to maintain student throughput and faculty training while ensuring student and instructor protection. Two USAFSAM courses, Basic Leadership Airman Skills Training (BLAST) and Basic Instructor Course (BIC), were used to pilot this rapid conversion process and to examine outcomes, including pre- and post-conversion student end of course (EOC) surveys.

The objective of this study was to determine if in-person and online BLAST and BIC course outcomes were equivalent.

METHODS

- BLAST**
- Develops leadership and trusted care capabilities
 - 39 learning objectives
 - Converted BLAST courses began in October 2020
- BIC**
- Prepares USAFSAM instructors to teach Community College of the Air Force credit awarding courses
 - Converted BIC courses began May 2020

BLAST Pre

Didactic instruction

Small group exercises

5 days in-residence

BLAST Post

Asynchronous & Synchronous instruction

Synchronous online breakout rooms with standardized script

5 days online with 21 Blackboard lessons

BIC Pre

Didactic and small group assignments

Group paced

20 day in-resident

BIC Post

Lectures, breakout sessions, capstone project

Synchronous and asynchronous

Blackboard environment

Assessment

- Student EOC surveys assessed differences pre and post
- EOC surveys
 - 17 items
 - 6 self-reported responses ranging from strongly agree to strongly disagree
 - Open ended responses for narrative comments
- BIC and BLAST evaluated separately
- Independent samples *t*-tests or Mann-Whitney *U* tests as appropriate

RESULTS

BLAST

- Seven sets of pre-COVID EOC surveys (n=514 students) and six sets of post-COVID EOC surveys (n=186) were included in the analysis
- Independent means *t*-tests showed statistically significant differences in student responses to 8 of 17 EOC items with a higher mean score for one item in pre-COVID classes and six items in post-COVID classes
- The mean differences for items with statistically significant findings was no more than 0.22 on a six point scale with small Cohen's *d* effect sizes (range = .19-.34)
- High level of satisfaction with course delivery in both class formats**
Mean student EOC responses for pre- and post was *agree to strongly agree*
- Ability to perform career field tasks similar for both class formats**
Mean student response for ability to perform tasks required by career field not significantly different in pre-COVID in-person classes ($M = 5.36, SD = 0.78$) when compared to post-COVID online courses ($M = 5.44, SD = 0.73$)
- BLAST instructors reported
 - Perceived increase in student participation in the online, post-COVID environment with video and chat box features
 - Students were better able to exchange ideas freely within a 'rank heavy' educational environment
 - Assuming a standard throughput of 400 students annually, a savings of \$600,000 in temporary duty-to-school funds by moving to online format
- Post-COVID online student feedback:

"I wasn't very excited to take this class virtually, but it actually ended up a really great experience...the time I spent in the mornings getting ready for my course in the afternoon...really made for a much more relaxed class setting but still allowed for a lot of great interactions and conversations. I really enjoyed this course!"

FY21	A	B	C	D	E	F	G	H	I	J	K	Total
Officers	16	28	22	14	12	20	10	7	16	26	7	178
Enlisted	21	18	12	6	9	7	10	8	9	16	11	127
Civilians	2	4	2	1	0	2	0	2	0	3	1	17
Total	39	50	36	21	21	29	20	17	25	45	19	322
Would Recommend	100%	95%	92%	100%	100%	96%	100%	100%	100%	100%	100%	98%

BIC

- Three sets of pre-COVID EOC surveys (n=31 students) and three sets of post-COVID EOC surveys (n=35) were included in the analysis
- Nonparametric statistical testing utilized due to small sample size and skewed data
- Mann-Whitney *U* tests showed no statistically significant differences in student responses to 16 of 17 EOC items
- High level of satisfaction with course delivery in both class formats**
Median and modal response for both pre- and post-COVID EOC responses for the majority of items was *strongly agree*
- Ability to perform career field tasks similar for both class formats**
Median and modal student response was *strongly agree* that students could perform tasks required by their career field based on what they learned
- BIC instructors reported
 - The online environment was flexible and adaptable allowing for increased integration of engaging student activities
 - Additional benefit of asynchronous learning included a decrease in student absences and requests to schedule appointments during class time

CONCLUSIONS

Through the pilot conversion of both BLAST and BIC, lessons learned were obtained from the implementation team as well as student opinions of the two course formats. The success of the course conversions was supported by student evaluations of the two courses when delivered in in-person and online formats. Instructors observed the online environment to be engaging, adaptable, and aided in the reduction of traditional in-person challenges, such as student absences and discussion retention.



The analysis of EOC surveys indicated no substantive differences between in-person and online course delivery. Due to small sample size of post-COVID BIC data, additional data collection and ongoing analysis is recommended. Further analysis of the challenges and strengths of course conversion and implementation observed by the instructional designers and instructors is intended with the goal of applying lessons learned to other USAFSAM courses.



IMPLICATIONS

An in-depth assessment is recommended to assess the cost savings from reduced travel expenses as compared to the costs of utilizing the increased technology and faculty resources required to provide online course delivery. The positive attributes gained by online delivery, potential cost savings, and the initial findings regarding student evaluations suggest online courses may be beneficial to educating Airmen, while continuing to attain similar outcomes to traditional, in-person offerings. These preliminary results may also demonstrate how mission essential courses may be provided in a future degraded environment, beyond the current COVID pandemic.



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