

## ABSTRACT

The optimization of flight training operations at higher educational institutions can be helpful in increasing the efficiency at which student pilots attain their certification and help supply more pilots into the industry. Large training institutions usually offer students certain blocks of time to conduct their training. At these schools, the Instrument course is usually administered during daytime or nighttime flight blocks. The purpose of this research study was to analyze if there was a significant difference in cost and dual-given time it takes to complete the Instrument course during the day compared to at night.

Two independent samples *t*-tests were conducted; the parameters selected were Two-Tail, with a sample size of 128. Archival data records of higher educational aviation institutes was analyzed. This research poster demonstrates how flight block times can significantly impact both the cost and completion time for the Instrument course at aviation universities, and highlighted factors that led to these results.

## NULL HYPOTHESES

H<sub>0</sub>1: There is no significant difference in the cost for completing the Instrument course at higher educational aviation institutes between students who have flight blocks during the day compared to students who have flight blocks at night.

H<sub>0</sub>2: There is no significant difference in completion time (amount of logged dual given hours) for the Instrument course between students who have flight blocks during the day and students who have flight blocks at night.

## RESULTS

The mean cost for completing the Instrument Course at Night ( $M = \$16,263$ ,  $SD = \$2,040$ ) was cheaper than the cost for completing the Instrument Course during the Day ( $M = \$17,366$ ,  $SD = \$2,715$ ). An independent samples *t*-test was significant at the alpha level of .05,  $t(3.535) = 14.52$ ,  $p < .001$ . Therefore, the null hypothesis was rejected. Cohen's  $d = 0.207$ , which is a medium effect. The following table shows the output results obtained from SPSS for the Independent Samples *t*-test. As the lower and upper values do not show zero, this points to a significant test.

The mean time for completing the Instrument Course at Night ( $M = 32.92$ ,  $SD = 4.90$ ) was cheaper than the time for completing the Instrument Course during the Day ( $M = 34.65$ ,  $SD = 12.60$ ). An independent samples *t*-test was significant at the alpha level of .05,  $t(2.916) = 11.55$ ,  $p = .004$ . Therefore, the null hypothesis was rejected. Cohen's  $d = 0.153$ , which is a small effect. The following table shows the output results obtained from SPSS for the Independent Samples *t*-test.

## DISCUSSION

As discussed in previous chapters, day and afternoon times are generally peak times for air travel and air traffic control service requests. Having more traffic not only reduces the capability of ATC to provide services, but also increases delays experienced by pilots.

Other possible reasons why students spend more money and flight time during the day include more ground delays experienced at large airports throughout the country.

Turbulence and extensive vigilance required during day flying can also cause delays due to the need to avoid traffic or find suitable locations within the airspace to practice holding maneuvers or attitude instrument flying patterns.

In summary, the situations discussed above demonstrate how many reasons that cause an increase in flight time during the day are less prevalent at night.

## REFERENCES

All references and sources are cited in the capstone Research Paper

## RECOMMENDATIONS

Students that have the opportunity to choose from different blocks, and are not affected by a waitlist or other conflicting scheduling assignments can use the results obtained from this research to make a more informed and educated decision on the specific flight block they will choose to sign up for.

