Cockpit Text Communications: Evaluating the Efficiency and Accuracy

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Cockpit Text Communications:
Evaluating the Efficiency and Accuracy of Different Keyboards

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Overview

- Literature Review
- Research Problem/Question
- Methodology
- Results
- Discussion of Results
- Conclusions
Data Communications

• A move from voice communications to text communications
• A text reference does not have to be remembered
• Fewer human errors and faster response times
Keyboards In The Cockpit
Research Problem/Question

• Which size of two-handed, QWERTY keyboard would be the most efficient and accurate for use in aviation communications and FMS input?
Methodology

• 10 student participants with at least a Private Pilot Certificate
• Large, medium, and small keyboard
• Custom Typing Test
• Descriptive Statistics Analysis
Keyboards
Custom Typing Test

Submit your own text

United 124 climbing to FL320

United 124 climbing to FL320

United 124 climbing

Test results

<table>
<thead>
<tr>
<th>WPM</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.05</td>
<td>82%</td>
</tr>
</tbody>
</table>

you typed 5 words in 41 seconds and made 6 mistakes

What now?

- more typing tests
- play typing games
- see your stats
- typing competition
- play brain games
- billion dollar quest

Share with friends
Mean Accuracy

- Overall
- Medium Length Tests
- Shorth Length Tests
- Long Length Tests

% Correct

- Large
- Medium
- Keyboard
- Small
Discussion of Results

- **Typing Speed:**
  - Medium keyboard slightly faster than the larger keyboard
  - Small keyboard considerably slower than other keyboards
  - Medium sized keyboard performed the best

- **Accuracy:**
  - Small keyboard performed the best
  - Medium keyboard the second best accuracy
  - Large keyboard the least accurate
  - Only separated by a few percentage points
Conclusions

• Medium sized keyboard appears to be the optimal keyboard

• Further research that is aircraft and cockpit specific

• Tests conducted in either simulated to actual flight conditions

• Consideration for participant’s preference

• Larger Sample size