BEST EVIDENCE on FITS
SAFER Project Report
NTAS March 23, 2006

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**FITTS Group:** 16 MTSU students began their flight training in “glass” in DA-40 aircraft using the FAA-approved training program in August 2004.

**Traditional Round (Archival):** 19 students who had taken their Private and Instrument flight training at MTSU.
- Bottlenecks: Additional time required to complete a lesson beyond syllabus requirements
- Setbacks: Repeated lessons
Setbacks Comparison

- "FITS"
- Traditional Round

Graph showing setbacks comparison for different stages: Start, Presolo, Pvt X-C, IFR.
Our data indicates that “FITS” trained pilots have fewer setbacks over the entire VFR/IFR training.

But what was the determining factor?

TAA or “FITS”
Second Phase – Fall 2005
TAA with traditional syllabus
- **Traditional Glass**: 11 students (7 have finished) who had taken their Instrument flight training at MTSU using a traditional syllabus in a TAA (glass cockpit)

- **Traditional Round**: 19 students who had taken their Private and Instrument flight training at MTSU
Identified Bottlenecks

- Traditional/Glass
- Traditional/Round
- Syllabus Hours
**Identified Setbacks**

![Graph showing mean number of setbacks for different training types](graph.png)

- **IFR Training**
- **FITS**
- **Traditional ROU**
- **Traditional GLA**

*** = significantly different from traditional groups, p < 0.05
One of our “FITS” students passed her combined Private / Instrument check ride with a total of 55 airplane hours!
IF WE ARE GOING TO BE CERTIFICATING PILOTS WITH FEWER HOURS

WHAT KIND OF PILOTS WILL THEY BE?
NTSB REPORT: 2005 Accidents
Released March 2006

- “GA Crash Stats Rise Significantly For 2005”
  .................................................. AVweb, March 20, 2006

- “Accidents – End of Downward Trend”
  .................................................. Associated Press, March 20, 2006

“The increase in accident statistics is disappointing”
.................................................. NTSB Acting Chairman Mark Rosenker
PHASE THREE

“THE EFFECTS OF A “FITS” TRAINING PROGRAM THAT EMPHASIZES SCENARIO BASED FLYING ON PILOT DECISION MAKING SKILLS “
METHODOLOGY

- 16 Students enrolled in the “FITS” group
- 7 Students enrolled in the Traditional / Glass Group
- 24 Pilots who completed their Instrument training within 6 months / Traditional Round
METHODOLOGY

- All groups were administered pencil and paper tests following the completion of their flight training
### DEMOGRAPHICS

<table>
<thead>
<tr>
<th></th>
<th>FITS</th>
<th>Traditional Round</th>
<th>Traditional Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE:</strong></td>
<td>19.6 ± 1.6</td>
<td>20.7 ± 1.7</td>
<td>21.6 ± 1.0</td>
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</tbody>
</table>
## DEMOGRAPHICS

<table>
<thead>
<tr>
<th></th>
<th>Total Airplane Hours:</th>
<th>Total Flight Hours:</th>
</tr>
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<tbody>
<tr>
<td>FITS</td>
<td>90.8 ± 5</td>
<td>90.8 ± 5</td>
</tr>
<tr>
<td>Traditional Round</td>
<td>176.8 ± 12</td>
<td>188 ± 10</td>
</tr>
<tr>
<td>Traditional Glass</td>
<td>162.0 ± 11</td>
<td>162 ± 8</td>
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</tbody>
</table>
DEMOGRAPHICS

Total Instrument Hours:

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<tbody>
<tr>
<td>FITS</td>
<td>44.3 ± 2.0</td>
</tr>
<tr>
<td>Traditional Round</td>
<td>38.3 ± 3.0</td>
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<tr>
<td>Traditional Glass</td>
<td>42.2 ± 6.0</td>
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Total Actual Hours:

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<tbody>
<tr>
<td>FITS</td>
<td>6.1 ± 1.8</td>
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<tr>
<td>Traditional Round</td>
<td>4.6 ± 0.7</td>
</tr>
<tr>
<td>Traditional Glass</td>
<td>2.3 ± 1.0</td>
</tr>
</tbody>
</table>
## DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Total PIC Hours:</th>
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<tbody>
<tr>
<td>FITS</td>
<td>6.1 ± 0.6</td>
</tr>
<tr>
<td>Traditional Round</td>
<td>125.6 ± 14</td>
</tr>
<tr>
<td>Traditional Glass</td>
<td>107.8 ± 12</td>
</tr>
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</table>
Personal IFR Comfort Questionnaire

- How comfortable are you to fly alone in the IFR environment?
- How comfortable are you to fly alone in IMC?
- How comfortable are you to shoot an ILS approach to minimums?
- What are your “personal minimums”? 
Responses

- 1 = Not comfortable
- 2 = Somewhat comfortable
- 3 = Comfortable
- 4 = Very comfortable
- 5 = Absolutely comfortable, no problem!
RESULTS

- Not Comfortable Flying Alone in the IFR Environment

  Traditional Round  18 %
  Traditional Glass  0 %
  FITS              0 %
RESULTS

- Not Comfortable Flying Alone in IMC

- Traditional Round: 38%
- Traditional Glass: 0%
- FITS: 14%
RESULTS

- Not Comfortable Shooting an ILS to minimums

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<tbody>
<tr>
<td>Traditional Round</td>
<td>16 %</td>
</tr>
<tr>
<td>Traditional Glass</td>
<td>0 %</td>
</tr>
<tr>
<td>FITS</td>
<td>0 %</td>
</tr>
</tbody>
</table>
RESULTS

Would You Feel Comfortable Using a GPS When Flying IMC

- Traditional Round: Yes (48 %)
- Traditional Glass: Yes (100 %)
- FITS = Yes (100 %)
MEAN SELF-REPORT VISIBILITY

** = significantly different from all other groups, p < 0.05
*** = significantly different from all other groups, p < 0.05
What are your personal minimums?

Visibility: Never Thought about it!

- Traditional Round: 68%
- Traditional Glass: 60%
- FITS: 18%
Our results indicate that pilots have fewer setbacks over the entire VFR/IFR training using the FITS syllabus.

Our results suggest that the FITS training, and not the aircraft, makes the difference.

“FITS” trained pilots are:

1) More comfortable with their IFR skills
2) More comfortable with their automation
3) More conservative with IFR decision making
Other Data Analysis Pending

- What influence does an FTD have on FITS trained students?
- Any relationship between cognitive demands and “set backs or bottlenecks”
- Any relationship between self-efficacy and quality of TAA pilot
- Follow up study at 3-6 months
QUESTIONS