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Flight Simulator
Transfer of Training
Study

A thesis presented in partial fulfilment of
the requirements for the degree of Master of Aviation
at Massey University, Albany, New Zealand.

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2003
Abstract

This purpose of this research was to investigate the training effectiveness of two different flight simulators, when student pilots enrolled in a university aviation degree course were trained to fly an instrument holding procedure. A PC-based simulator and an approved instrument simulator were used to teach two experimental groups to fly a Non-directional Beacon (NDB) holding instrument procedure. Their time to reach proficiency and their flight performance in a Cessna 172SP aircraft was compared to a control group that was trained solely in the aircraft. A Pre-flight Questionnaire was used to establish the participants’ previous PC-based simulator experience and their current attitudes towards their use. Flight data was recorded to determine the participants’ performance when flying the NDB holding pattern in the aircraft and the resulting flight times were used to determine the Percent Transfer and Transfer Effectiveness Ratio (TER) of the approved instrument simulator and the PC-based simulator. The Cost Benefit equation was used to determine the financial savings resulting from the use of these simulators. A Post-flight Questionnaire was used to determine the flight instructor’s opinion of the participants’ flight performance when flying the NDB holding pattern. The results of this study were unable to confirm significant differences between the two experimental simulator groups and the aircraft control group, however there were indications that prior training in a simulator reduced flight time to criterion and there was a small but positive Percent Transfer and TER. The Cost Benefit analysis revealed that there was generally a negative cost benefit as a result of the small TERs and the relatively close operational cost of the aircraft and simulators. The study concluded that although the transfer of training effects of the simulators were small, they were still a positive indication of what PC-based simulators and approved instrument simulators are capable of as computer technology continues to improve. The study recommended that further research using PC-based simulators to train complicated instrument procedures is required with a larger sample size.
Acknowledgements

I would like to thank my supervisor, Dr Bernie F. Frey for his guidance, advice and encouragement during this study.

I would like to acknowledge the assistance of the staff at the Massey University Ardmore Flight Systems Centre, with special thanks to flight instructors Richard Dunnage and Josh Bennetts.

To the student pilots from Massey University who were involved in this research, I would like to thank you for your participation, enthusiasm and patience.
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>Contents</td>
<td>iv</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vi</td>
</tr>
<tr>
<td>List of Equations</td>
<td>vii</td>
</tr>
<tr>
<td>List of Appendices</td>
<td>vii</td>
</tr>
<tr>
<td>Chapter One: Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 The Organisation of the Thesis</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Background</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Flight Simulator History</td>
<td>2</td>
</tr>
<tr>
<td>Chapter Two: Literature Review</td>
<td>8</td>
</tr>
<tr>
<td>2.1 Official Simulator Categories</td>
<td>8</td>
</tr>
<tr>
<td>2.2 Personal Computer Based Flight Simulators</td>
<td>10</td>
</tr>
<tr>
<td>2.3 Flight Training Syllabus</td>
<td>12</td>
</tr>
<tr>
<td>2.4 Percent Transfer</td>
<td>14</td>
</tr>
<tr>
<td>2.5 Transfer Effectiveness Ratio (TER)</td>
<td>16</td>
</tr>
<tr>
<td>2.6 Incremental Transfer Effectiveness Ratio (ITER)</td>
<td>18</td>
</tr>
<tr>
<td>2.7 Cost Benefit</td>
<td>20</td>
</tr>
<tr>
<td>2.8 Recent Studies Using PC-based Simulators</td>
<td>22</td>
</tr>
<tr>
<td>2.9 Defining the Research Problem</td>
<td>25</td>
</tr>
<tr>
<td>Chapter Three: Method</td>
<td>27</td>
</tr>
<tr>
<td>3.1 Experimental Design</td>
<td>27</td>
</tr>
<tr>
<td>3.2 Subjects</td>
<td>28</td>
</tr>
<tr>
<td>3.2.1 Characteristics of the Groups</td>
<td>30</td>
</tr>
<tr>
<td>3.3 Equipment</td>
<td>32</td>
</tr>
<tr>
<td>3.3.1 Simulators</td>
<td>33</td>
</tr>
<tr>
<td>3.3.2 Aircraft</td>
<td>38</td>
</tr>
<tr>
<td>3.3.3 Instructional Materials</td>
<td>39</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>3.3.4</td>
<td>Questionnaires – “Soft” Measures</td>
</tr>
<tr>
<td>3.3.5</td>
<td>Tracking Systems – “Hard” Measures</td>
</tr>
<tr>
<td>3.4</td>
<td>Procedure</td>
</tr>
</tbody>
</table>

**Chapter Four: Results**

- 4.1 Construction of the Independent & Dependent Variables | 49
- 4.2 Flight Conditions | 51
- 4.3 Covariates | 51
- 4.4 Data Analysis | 52
- 4.4.1 Pre-flight Questionnaire Results | 52
- 4.4.2 Flight Data Results | 56
- 4.4.3 Post-flight Instructor Questionnaire Results | 73
- 4.5 Percent Transfer Results | 78
- 4.6 Transfer Effectiveness Ratio Results | 79
- 4.7 Cost Benefit Results | 81

**Chapter Five: Discussion**

- 5.1 Introduction | 83
- 5.2 Pre-flight Questionnaire | 83
- 5.3 Flight Data | 85
- 5.4 Post-flight Questionnaire | 87
- 5.5 Percent Transfer | 90
- 5.6 TER | 91
- 5.7 Cost Benefit | 92
- 5.8 Limitations of the Study | 93
- 5.9 Conclusions and Recommendations | 95
- 5.10 Areas for Future Research | 98

**References** | 101
**Glossary** | 107
**Appendices** | 108
List of Tables

1. Means and Standard Deviations for Group Characteristic Variables .......... 32
2. Descriptions of the Dependent Variables .................................................. 50
3. Flight Data Analysis of Variance .............................................................. 57
4. Post Hoc Power Calculations for Flight Data Variables ............................... 60
5. Univariate Results for the Post-flight Instructor Questionnaire .................. 73
6. Percent Transfer Results for SAV-1 & F141 Groups .................................... 79
7. Transfer Effectiveness Ratio for SAV-1 & F141 Groups ................................. 80
8. Cost Benefit Results for the SAV-1 Group and the F141 Group ...................... 82
9. Means and Standard Deviations for Flight Results ..................................... 116
10. Means and Standard Deviations for Post-flight Questionnaire ..................... 118

List of Figures

1. Early Flight Simulator .................................................................................. 3
2. The Anoinette ‘Apprenticeship Barrel’ ....................................................... 4
3. The Link Trainer ......................................................................................... 5
4. Boeing 777 Full-Motion Flight Simulator .................................................... 6
5. Examples of Early Flight Simulator Games .................................................. 10
6. Examples of Recent Flight Simulator Games ............................................... 11
7. SAV-1 PC-based Flight Simulator ............................................................ 33
8. Cirrus Control Yoke and Rudder Pedals .................................................... 34
9. SAV-1 Instrument Panel ............................................................................ 35
10. Frasca 141 Instrument Simulator ............................................................... 36
11. Frasca 141 Instrument Panel .................................................................... 37
12. Cessna 172 SP ......................................................................................... 38
13. Cessna 172 SP Instrument Panel ............................................................. 39
14. The Surrey NDB Ground Station Transmitter .......................................... 40
15. Automatic Direction Finder (ADF) Instrument Display .............................. 40
16. Standard Holding Pattern ......................................................................... 41
17. Compaq and Toshiba Laptops ................................................................. 44
18. Student Wearing IFR Hood While Flying on Instruments ............................ 46
19. Flight Time ............................................................................................... 61
20. Airborne Time .......................................................................................... 62
21. Training Time .......................................................................................... 63
22. Practice Time. ................................................................................................................. 63
23. Total Number of Holds Flown in the Aircraft. ................................................................. 64
24. Number of Training Holds Flown in the Aircraft ............................................................ 65
25. Number of Practice Holds Flown in the Aircraft ............................................................. 66
26. Maximum Deviation from Reference Altitude. ................................................................. 66
27. Average Deviation from Reference Altitude. ................................................................. 67
28. Average Deviation from Reference Altitude During the Training Period. ..................... 68
29. Average Deviation from Reference Altitude During the Practice Period ......................... 69
30. Average Inbound Tracking Angle from Reference Inbound 310 Degrees. ....................... 70
31. Average Inbound Tracking Angle During the Training Period. ....................................... 71
32. Average Inbound Tracking Angle During the Practice Period. ....................................... 72
33. Height Holding in General. .............................................................................................. 74
34. Attempt to Regain Assigned Altitude. .............................................................................. 75
35. Attempt to Maintain Correct Inbound Tracking. ............................................................ 75
36. Demonstrated an Improvement in Flying the Correct Holding Pattern. ......................... 76
37. The Student’s Understanding of the Holding Pattern Procedure. .................................... 77
38. Rate the Student’s Performance. ..................................................................................... 77
39. Transfer Effectiveness Ratios for the SAV-1 and F141 Groups. ....................................... 80
40. Aeronautical Map of South Auckland. .......................................................................... 112

List of Equations
1. Percent Transfer Equation .............................................................................................. 14
2. Transfer Effectiveness Ratio Equation ............................................................................ 16
3. Incremental Transfer Effectiveness Ratio Equation ....................................................... 18
4. Cost Benefit Equation .................................................................................................... 20

List of Appendices
A Holding Pattern Mass Brief .......................................................................................... 108
B Aeronautical Map of South Auckland ............................................................................ 112
C Instrument Plate for Holding at Surrey NDB .................................................................. 113
D Pre-flight Questionnaire .................................................................................................. 114
E Post-flight Questionnaire ............................................................................................... 115
F Means & Standard Deviations for Flight Results ............................................................ 116
G Means & Standard Deviations for Post-flight Questionnaire .......................................... 118