ABSTRACT
The goal of the Information Presentation Directed Research Project (DRP) is to address design questions related to the presentation of information to the crew. The major areas of work, or subtasks, within this DRP are: 1) Displays, 2) Controls, 3) Electronic Procedures and Fault Management, and 4) Human Performance Modeling. This DRP is a collaborative effort between researchers at Johnson Space Center and Ames Research Center.

DISPLAYS – Visual displays
FY08 Studies
Label Alignment
Three studies investigated the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- For large data groupings, such as the 16-label group, data-alignment is faster than left-alignment.
- In high fidelity displays, there was no difference in search times between left and data-aligned labels.

Label Orientation
The purpose of the study was to investigate the effects of label orientation.

<table>
<thead>
<tr>
<th>0° (horizontal)</th>
<th>90° left</th>
<th>90° right</th>
<th>marquee</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEXT</td>
<td>TEXT</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>T E X T L E F T</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Follow-up on alignment studies from FY08, further investigating left-aligned versus data-aligned labels for performance differences. The experimental task will be varied, and eye tracking will be used to gather higher precision data.

- Investigate methods of distinguishing between labels and values, such as colors, spaces, and boling.
- Investigate methods of indicating "clickable" areas on a display.
- Investigate tradeoffs between color-coding on text versus color-coding on an associated symbol.

Readability under vibration
Follow-up on the FY08 vibration study to examine the effects of different fonts and sizes, line spacing, and color. Complete preparations and training for the Vibration Readability DSO (first flight scheduled for Feb 2009). Perform a detailed comparative analysis between data collected in a vibration only condition with data collected in a vibration + vibration experiment (from separately funded effort occurring in Fall 2008) to determine the added value of the centrifuge, and the data lost without the high-g environment.

The purpose of the study was to investigate the effects of label orientation.

Studies Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up on alignment studies from FY08, further investigating left-aligned versus data-aligned labels for performance differences. The experimental task will be varied, and eye tracking will be used to gather higher precision data.

- Investigate methods of distinguishing between labels and values, such as colors, spaces, and boling.
- Investigate methods of indicating "clickable" areas on a display.
- Investigate tradeoffs between color-coding on text versus color-coding on an associated symbol.

Readability under vibration
Follow-up on the FY08 vibration study to examine the effects of different fonts and sizes, line spacing, and color. Complete preparations and training for the Vibration Readability DSO (first flight scheduled for Feb 2009). Perform a detailed comparative analysis between data collected in a vibration + vibration experiment (from separately funded effort occurring in Fall 2008) to determine the added value of the centrifuge, and the data lost without the high-g environment.

The purpose of the study was to investigate the effects of label orientation.

Studies Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.

Displays Planned for FY09
Follow-up studies were planned for FY09, examining the effects of label alignment in small and large data groupings: 4, 8, and 16 label/value pairs, as well as high fidelity displays. The task was to find a value that corresponded to a target label.

- Horizontal labels improve reading time compared to vertical labels.
- Additional label orientation studies are needed and being planned so that a solid design recommendation can be made.