Follow up 1/13/2012 meeting

Attendees: Gil, Linus, Ma, Michael, Qin, Tupler, Zhu

Hello everyone,
As a follow-up to the meeting on 1/13/2012, below are the notes and the action items I recorded. Please advise if I have missed anything.

**Meeting Notes**
1. Summary of second data collection
   a. Data collection of 24 subjects
   b. 1 remaining payment (will bring Tuesday (1/17))
      i. Money will not go further after Friday.
2. Data analysis
   a. ROCF (Caesar)
      i. Visual-aid condition has the highest improvement.
         1. However, the pre-test scores for visual-aid condition was the lowest, although the post-test scores were similar. For that reason, visual-aid condition has the highest improvement.
            a. One of the reason might be that we did not use EFT test for subject categorization.
      ii. Need to compare the % improvement with the results of the first experiment (native, VR, Aug. VR)
      iii. Plot scaling should be same for each plot (unit score plot).
      iv. Dr. Kaber:
         1. Why did ROCF using haptic device decrease the performance?
         2. Dr. Tupler: Because long straight movement can improve the ROCF skill.
         3. Caesar: there is no long line in haptic simulation.
         4. Linus:
            a. Visual-aid condition: there is a possibility to improve motor control.
            b. Haptic-aid condition: there is no room for improving motor control capability.
   b. Pre & Post test (Janet)
      i. BD scores:
         1. Haptic-aid condition showed highest improvement while visual-aid condition showed lowest improvement.
         2. This result is opposite to the ROCF results.
      ii. EFT:
         1. EFT is not appropriate to see the improvement.
         2. EFT is more appropriate for categorizing subjects' characteristics.
a. Make a batch → make a balance with FD & IFD subjects.

iii. Dr. Tupler:
1. Should check the significance of baseline test.

b. Therapy session (Biwen)
i. Repeated measures ANOVA
1. BD task completion times: significant
   a. Visual-aid condition was fastest while native has been shortest. However, combination and haptic aid were in same group and between native and visual.
2. BD scores: significant
   a. Native showed the least score than others.

ii. One-way ANOVA on learning percentage
1. BD task time: Not significant
2. BD score: significant

iii. Need diagonal analysis from “Time” to “K”

b. BD strategy classification (Michael)
i. Orientation index:
   1. Another measure that can be used to determine whether subjects are favoring Analytic or Global strategies.

ii. Event log of the current simulation software
   1. Subject, trial, design, time, Right_Wrong, user, target, row, & col

iii. Orientation index by condition:
   1. Visual-aid condition was the most helpful to the subject, while haptic-aid condition was the least.
   2. Use only first trial since condition appears to have influenced the subject’s strategy over time.

iv. Orientation index by subject for trial 1
   1. Subject 20 in combination, 11 in haptic and 9 in visual that had very low BD and EFT scores showed least orientation index.

v. Orientation index by design
   1. Showed similarity with Rezencwaig & Corroyer’s observations.
      a. Striped designs (Design 11) and designs made of diamonds (Design 13) favor application of a global strategy as compared to more abstract design (Design 12).

vi. Orientation index by condition within Design 11 ~ 13
   1. Haptic showed the least orientation index while visual showed highest.
      a. This means that subjects presented with the haptic condition repositioned blocks more often with the increased design difficulty.

vii. Dr. Tupler:
1. We need to know what changes overtime?
   a. Need to make a cognitive model from orientation index.
   b. Rebuild cognitive flowchart
      i. Revisit previous papers.

viii. Dr. Kaber:
   1. Haptic detract some capability.
      a. What are the limitations of haptic device?
      b. Why was that occurred?
   2. Visual: aid visual -> no perception
   3. Haptic: no perception (visual-aid) -> a lot of perception training

   e. Visual assistance (Linus)
      i. Average use of visual assistance over trials:
         1. Visual-aid condition showed the higher number of use than combination condition. (significant)
      ii. Touching target by trial
          1. The number of use has been decreased by trials.
      iii. Touching target by design
          1. The number of use has been increased when the complexity has been increased (1 → 13).

3. AT manuscript:
   a. Please see the summary in the website.
   b. Will resubmit or submit to other journal ASAP.

4. To do:
   a. Janet will lead data analysis team (Janet, Caesar, Biwen, Linus)
   b. Michael and Guk-Ho will resubmit manuscript.

These are all the items that I noted or recalled from the meeting. If you have other points, please let me know.
Guk-Ho Gil