APPENDIX G

Usability Test Procedures and Script

APPENDIX G

Usability Test Procedures and Script

1.0 Introduction: We explain the goals of the study to the participant and emphasize that this is a test of the materials (including the currency), not a test of their competence. Their inputs will be used by the Department of Treasury to aid in the design of future currency.

Good evening, my name is _____ and I work with ARINC, an independent research firm, under contract to the Bureau of Engraving and Printing. We're conducting this study in order to get a better understanding of how blind and low vision people use US currency. We really appreciate your help with our study. It is most important to remember that we are not testing you. We're testing the currency and some currency reader devices, to see how well they work for people like you. So I hope you won't feel any pressure.

Today I have a several different types of currency from around the world. They all include features that are designed to help people with vision impairments. We'd like you to try them out and tell us what you think of them. I also have some devices that can read a bill and tell you what the value is. We'd like to get your feedback on how well these options work for you.

2.0 Exploration: Half of the participants will perform one set of tasks first, and the other half will perform the other set first. This counterbalancing is done in order to minimize the effect that initial exposure has on rated preferences.

2.1 Currency Exploration. We show examples (all common denominations) from one currency test set, point out the relevant accommodations that are incorporated, and allow the participant to examine the items and become familiar with them.

I have here some Canadian currency. The Canadian bills include some bumps that are a bit like Braille, except the bumps don't actually represent a letter. You can tell what bill it is by where the bumps are located on the bill. Go ahead and try these out.
[Hand bills to participant, and say which is which. Guide the participant's hands to the bumps as necessary.] Can you feel those? Can you feel a difference?
The Canadian Bills also include large-print numbers on each side. Can you see those?

2.2 Reader Device Exploration. We show participants how to activate and use the currency reader device, then let them try it out on some U.S. currency.

You turn the device on by pressing the button here. [Show with hands as necessary.] You read a bill by...

3.0 Evaluation: In this section participants perform basic denomination tasks, and we record their results. Our primary results derive from analyses of the main effects (type of accommodations tested) and interactions (combinations of accommodations may boost performance, and performance may vary depending on the population sub-group).

3.1.1 Currency Evaluation. We give the participants materials, such as multiple examples of a particular country's currency, and ask the participant to tell us, if possible, what the denomination of each bill is. There will be multiple denomination tasks for each currency set. For this task the objective is a success score for each bill and a separate score for the set.

Here are some bills. [Hand the participant one to five bills from the task grid.] *Which denomination do you think they are? Please use any of the features to figure it out if you can.*

3.1.2 Reader Device Evaluation. We show participants how to activate and use the currency reader device, and then ask them to use it to denominate U.S. bills only. For this task the objective is a success score for each bill but we will also record the orientation of the bill as it may affect performance.

Here are three bills. [Hand the participant one to five bills from the task grid.] Which denomination do you think they are? Please use this device to figure it out if you can.

What do you think about this device's portability? Feel free to walk around with it a bit, or see if it will fit in your bag or pocket.

The Exploration and Evaluation phases are repeated for each of the available currencies and device prototypes. The order of the clusters (currencies vs. reader devices) is counter-balanced across participants.

4.0 Ranking: We ask participants to evaluate the accommodation methods that they have used (in each cluster).

First, we ask them to rank the types of currency features:
Which of the features were discernable?
Which of the features was most helpful?
Do you think any of the features would not work at all for you?
Do you think any of the features would cause problems?
[Put bills of all types in front of the participant to refresh memory as needed.]
Which was second most helpful?
Ranking of different implementations of similar features
Which size variety did you like best?
Which one had the best tactile features?

Then, we ask them to rank the types of reader devices:
Which of the devices was most helpful?

Which of the devices would you want to carry with you?
Are there any devices you would not want to carry with you?

Finally, we ask them to describe their ideal outcome given the options that we have presented.
What method or methods would you prefer to use to denominate currency?
 [If prefer currency features] *Which features would you prefer to have incorporated in the currency?*
[If prefer reader devices] *Which device would you prefer to use?*

5.0 Discussion: Participants are given an opportunity to discuss the various accommodations that they have worked with, and to make suggestions or provide any other feedback.

6.0 Demographic Questions: Participants will be asked basic questions about their age cluster, income bracket, and living situation (family member lives in household or not). All personally identifiable information will be kept anonymous in summary reports.

7.0 Usability Study Protocol Diagram

The figure below depicts the flow of the testing as described above.

```
                          ┌────────────────────────┐
                          │     1. Introduction     │
                          └────────────────────────┘
                                    ╱    ╲
     ┌───┐                        ╱        ╲                      ┌───┐
     │ A │                      ╱            ╲                    │ B │
     └───┘          ┌──────────────────────────┐                └───┘
                    │  Both sets if time available │
                    └──────────────────────────┘
         ╱                                                      ╲
┌────────────────────────┐                      ┌────────────────────────────┐
│  2A. Currency Exploration │                   │ 2B. Reader Device Exploration │
└────────────────────────┘                      └────────────────────────────┘
            │                                                   │
┌────────────────────────┐                      ┌────────────────────────────┐
│  3A. Currency Evaluation  │                   │ 3B. Reader Device Evaluation  │
└────────────────────────┘                      └────────────────────────────┘

┌──────────────────────┐                        ┌──────────────────────┐
│ X # of test currencies │                       │ X # of test devices    │
└──────────────────────┘                        └──────────────────────┘
            │                                                   │
┌────────────────────────┐                      ┌────────────────────────────┐
│  4A. Currency Ranking     │                   │ 4B. Reader Device Ranking    │
└────────────────────────┘                      └────────────────────────────┘
                    ╲                          ╱
                     ┌────────────────────────┐
                     │   5. Summary Ranking    │
                     └────────────────────────┘
                                 │
                     ┌────────────────────────┐
                     │     6. Discussion       │
                     └────────────────────────┘
                                 │
                     ┌────────────────────────┐
                     │ 7. Demographic Questions │
                     └────────────────────────┘
```