

NIST Generic Clearance for Usability Data Collections

OMB Control #0693-0043

Survey Questionnaires for: Usability of Biometric Systems

1. Explain who will be surveyed and why the group is appropriate to survey.

As part of a usability study of biometric systems, we intend to recruit 400 individuals. The biometric systems that are being evaluated will include fingerprint, iris, face, and voice modalities. The systems being evaluated will provide training information to users in multiple formats. Our designs compare the performance of users for each of the training formats for each of the biometric modalities in an effort to determine the time it takes to complete the biometric enrollment process. We completed a statistical power analysis to determine the ability of the test to detect the effect of the training on user performance. The analysis concluded that 100 individuals per format was a sufficient number to detect the effect. The survey data to be collected from each individual will identify which training factors are the most significant. The selected biometric modality is denoted in the survey instrument as “<selected biometric modality>”.

2. Explain how the survey was developed including consultation with interested parties, pretesting, and responses to suggestions for improvement.

The questionnaires that have been developed are based on standard templates used by our usability group. Similar questions were piloted, and validated in a relevant fingerprint study and a British study. The Demographic Questionnaire is a composite of questions from the British study as well as input from Department of Homeland Security fingerprint analyses. The Task Evaluation Questionnaire is a composite of questions from the British Study and previous studies performed by our usability group studying fingerprint systems. We have incorporated the feedback and suggestions from the previous studies and believe the form is highly usable in its current form.

3. Explain how the survey will be conducted, how customers will be sampled if fewer than all customers will be surveyed, expected response rate, and actions your agency plans to take to improve the response rate.

Prior to participation, all participants sign a consent form that fully explains the study and the survey. After each subject has given informed consent to participate in the research study, he or she will be given a paper copy and asked to complete the Demographic Information survey questions. As part of the study, survey completion is required. Then the subjects will receive training information on the biometrics system and will register their biometric data with the system.

After they have registered their fingerprint data, a final paper copy survey instrument

will be presented – Task Evaluation Questionnaire. The questions in this section are based on standardized methods in the usability field, specifically the Questionnaire for User Interaction Satisfaction (QUIS) (<http://www.lap.umd.edu/QUIS/index.html>).

The expected response rate will be 100% since each participant will be provided the survey by the fingerprint operator and will complete the survey as part of the overall fingerprint processing.

4. Describe how the results of the survey will be analyzed and used to generalize the results to the entire customer population.

We intend to compare the demographic information across the groups of subjects to assure that the characteristics of the group allow statistical comparison. The data in the task evaluations will be subjected to statistical analysis and form the primary outcome of the experiment. We intend to perform an analysis of variance to identify the sources of variability from one or more of the factors. By varying the factors in a predetermined pattern and analyzing the output, we plan to make an accurate assessment as to the cause of the variation in the fingerprint process.