

Survey Design and Administration – Guidance

Summary

Surveys are systematic measures of people’s thoughts, feelings, and opinions. They are important tools in operational test and evaluation because they help determine if military systems are suitable for use by military personnel. Surveys should be used to supplement objective human and system performance data or in instances where objective measurement is not feasible. Surveys should be developed in order to address specific questions related to the effectiveness and suitability of systems, such as the effect of operator workload on detection time, rather than as problem discovery tools. Interviews and focus groups are more effective methods for identifying unforeseen problems. Surveys that yield insights into system effectiveness and suitability require careful planning. Not only must the operational test community design valid and reliable survey instruments, but they must successfully integrate surveys into their test design, administering them systematically across test conditions to a representative group of users. This guidance identifies the types of information that the operational test community should consider when planning surveys into operational tests as well as the specific information needed in TEMPs. For information on the type of information required for Test Plans please reference the DOT&E guidance memo published in January 2017 entitled [Survey Pre-testing and Administration](#).

Survey Design & Administration Plans in TEMPs

TEMPs should specify which measures will be addressed by surveys, the purpose of those measures, the type of user that each survey will be administered to, and whether survey data will be collected using an empirically-vetted or custom-made instrument. An example of how to present this information is displayed in Table 1.

Table 1. Presenting Survey Design & Administration Information in TEMPs

| Measure | User Type | Evaluation Plan |
|---|-----------------|---|
| Workload during target detection tasks* | Radar operators | Compare workload ratings to time to detect first target under high and low density battlefield conditions |

**Empirically-vetted instrument*

Such information is useful for understanding the types of users that operational test agencies (OTAs) need to secure prior to operational testing, the number of unique scales¹ that must be developed as part of the test plan, and if those scales require pre-testing.

Pre-testing is a deliberate review of the survey instrument to ensure that the answers provided by respondents are similar to the data that the OTA intends to collect during operational

¹ Scales measure a specific psychological attribute like mental demand, physical demand, learnability, or usability. Surveys can be comprised of one or more scales.

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testing. Empirically-vetted instruments are existing scales that have undergone rigorous testing to establish that they are reliable and valid measures of specific concepts like usability and workload, and consequently, do not require pre-testing prior to use in operational tests. Custom-made instruments, by contrast, require pre-testing to ensure that they actually measure the concept that they are designed to measure prior to use. In addition to the information in Table 1, the TEMP should identify when custom-made instruments will be developed, how they will be pre-tested, when revisions from the pre-test will be completed and how they will be reported, including required staffing timelines. Any necessary resources, such as outside experts or representative users, should also be documented in the TEMP.

Several methods have been developed for pre-testing survey instruments. For example, Chapter XI of Army Research Institute's *Questionnaire Construction Manual* describes a set of guidelines for pre-testing survey instruments. These guidelines are useful for identifying (1) questions that are difficult for respondents to understand and interpret, (2) issues with formatting, (3) instructions that may make the survey difficult for respondents to navigate or compromise their interpretation of particular questions, and (4) the amount of time required for respondents to complete the survey. OTAs should refer to the *Questionnaire Construction Manual* or another reputable source to decide on an appropriate method for pre-testing custom-made instruments. A pre-testing example is available in Appendix A of the guidance memo entitled [Survey Pre-testing and Administration published by DOT&E in January 2017](#).

References

[Guidance on the Use and Design of Surveys in Operational Test and Evaluation \(OT&E\)](#), DOT&E, 22 December 2014

[Discussion on the Use and Design of Surveys](#), DOT&E, 24 February 2015

[Discussion on Including Neutral Responses on Survey Questions](#), DOT&E, 2 April 2015

[Survey Pre-Testing and Administration in Operational Test and Evaluation](#), DOT&E 6 January 2017