



The NASA Task Load Index for rating workload acceptability

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OBJECTIVE

Compare the original NASA Task Load Index (TLX) rating scale (low/high) with a continuous six-point scale for rating the workload acceptability.

BACKGROUND

- Nuclear power plant (NPP) operators' performance and workload are major concerns in order to accomplish safe operation.
- The NASA-TLX is a widely used multi-dimensional survey based measure of workload.
 - However, the interpretation of the workload scores remains a challenge
- Can we capture the participants' own evaluation of whether the workload was manageable or not?



Halden Man Machine Laboratory (HAMMLAB), in which the simulator study took place.

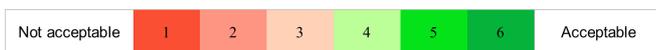
METHOD

The NASA-TLX evaluates subjects' workload on six sub-scales, including the *mental demand*, *physical demand*, *temporal demand*, *own performance*, *effort*, and *frustration*.

Nine NPP operators participated in a simulator study and reported the workload after six different scenarios using the original rating scale and an acceptability rating scale for the six dimensions in the NASA-TLX.



The original NASA-TLX rating scale

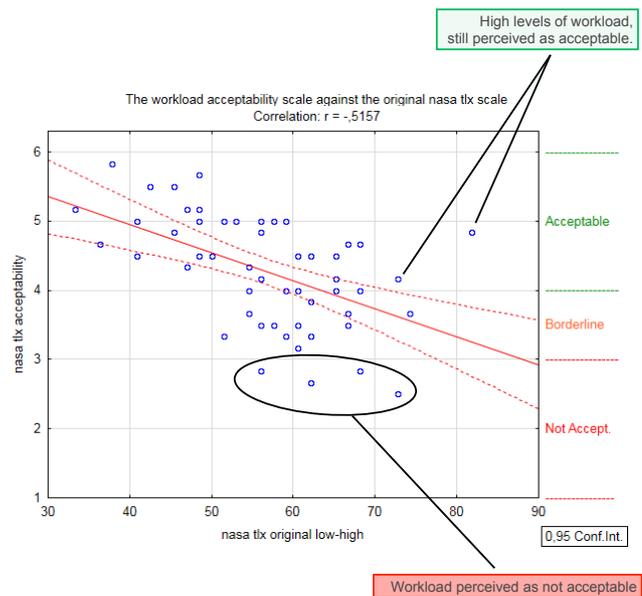


The acceptability rating scale applied for the NASA-TLX

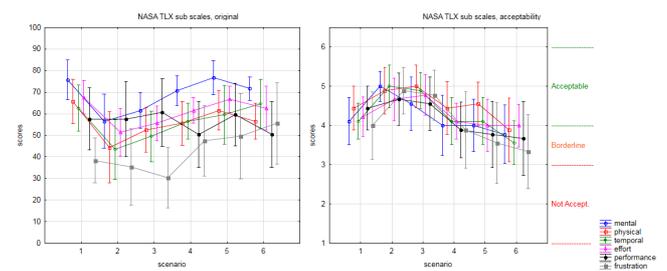
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RESULTS

- Workload levels below 50 were perceived as acceptable.
- Higher workload scores were associated with lower acceptability among the participants.
- However, high levels of workload (>70) were in some situations perceived as acceptable.



The *mental demands scale* yielded the highest scores among the sub-scales in the original NASA-TLX. The acceptability ratings showed congruent patterns across sub-scales.



CONCLUSION

The original NASA-TLX is an effective technique for assessing relative workload levels. Subjective ratings of whether the workload was manageable, as applied in this study, can provide further insights on possible performance and safety implications of the workload reported.

References

Grier, R. (2015). How high is high? A meta-analysis of NASA-TLX global workload scores. Proceedings of the HFES Annual Meeting Sept 2015, 59 (1), p. 1727-1731.

Hart, S. G. & Staveland, L. E. (1988) Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. In P. A. Hancock and N. Meshkati (Eds.) Human Mental Workload. Amsterdam: North Holland Press.